

IN THE UNITED STATES COURT OF FEDERAL CLAIMS

IDEKER FARMS, INC., <i>et al.</i>,)	
)	
Plaintiffs,)	
)	
v.)	No. 1:14-cv-00183-NBF
)	
UNITED STATES OF AMERICA,)	Senior Judge Nancy B. Firestone
)	
Defendant.)	

**PLAINTIFFS' PHASE II PROPOSED FINDINGS OF FACT,
CONCLUSIONS OF LAW AND POST-TRIAL BRIEF**

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In accordance with the Court’s “Order for Post-Trial Proposed Findings of Fact and Conclusions of Law,” **ECF No. 656**, Plaintiffs, by and through their counsel of record, respectfully submit their “Proposed Findings of Fact, Conclusions of Law, and Post-Trial Brief.”

INTRODUCTION

I. PLAINTIFFS’ PHASE II CLAIMS

Each of the three Court-designated Phase II Plaintiffs (“Plaintiffs”) have brought a Fifth Amendment inverse condemnation action against the Government. Each seeks just compensation for injuries and losses to real and personal property interests as to the three Court-designated tracts (“Phase II Tracts”) that resulted from government-induced flooding of the Tracts from 2004 through December 31, 2014, the “cut-off date” for their flooding claims. Each of the Tracts is owned by one of the Plaintiffs in fee simple. The Plaintiffs claim that they are entitled to just compensation for these flooding injuries and losses because they resulted from the Government’s taking of flowage easements (“FEs”) over the Phase II Tracts for an authorized public purpose without formal condemnation and the payment of just compensation in violation of the Takings Clause of the Fifth Amendment. Plaintiffs claim that the FEs were taken for the authorized public purpose of returning the Missouri River (“River”) to a more natural state to: (1) help restore a portion of the River basin’s ecosystem that was heavily damaged by decades of regulation and management of the River by the Government’s agent, the U.S. Army Corps of Engineers (“Corps”), in providing flood control to encourage settlement and development of the River basin; and (2) to comply with the Endangered Species Act (“ESA”).

Plaintiffs’ claim that FEs were taken as a result of deviations in the Corps’ management of the River due to the implementation of the Missouri River Recovery Program (“MRRP”) that began in 2004. The MRRP is the umbrella project implemented by the Corps to return the River to a more natural state. The MRRP encompasses deviations or changes in the Corps’: (1) operation

of the Missouri River Mainstem Reservoir System (“System Changes”); and (2) its operation and maintenance of the Bank Stabilization and Navigation Project (“BSNP or River Changes”). The Corps’ *System* Changes affected the timing and amount of water stored in and released from the System Reservoirs. The *BSNP* Changes modified the river-control structures that controlled the water *in the* channel. *Pre*-MRRP, prior to 2004, the System was operated and the BSNP was operated and maintained to disconnect the River from the floodplain to provide flood control as a number one priority of the Corps’ River management. *Post*-MRRP, the reverse occurred. The System was operated and the BSNP was operated and maintained to reconnect the River to the floodplain to benefit fish and wildlife by deprioritizing flood control.

II. THE SCOPE OF PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW AND POST-TRIAL BRIEF

The trial of the Phase II Bellwether Plaintiffs’ claims was bifurcated. However, it was not bifurcated in the traditional sense so as to address and determine *all* issues of *liability* in Phase I, and to address and determine all issues of *just compensation* in Phase II.

The Court addressed and concluded in Phase I that the Plaintiffs had satisfied the actual causation and foreseeability *liability* elements of their claims. It also addressed and concluded in Phase I that the Plaintiffs had satisfied the “severity of interference” appropriation factor.

As to the issues to be addressed in Phase II, the Court reserved the *just compensation issues* of: (1) the extent of the injuries and losses that resulted from the MRRP flooding found by the Court in Phase I to be a “but-for” cause of the relevant losses; and (2) the *value* of those injuries and losses. However, the Court also reserved the *liability* issues of the Plaintiffs’ reasonable investment-backed expectations of flooding (“RIBEF”).¹

¹The affirmative “*Sponenbarger* defense” was originally reserved for Phase II of the trial, but was later expressly excluded by the Court per its Order of January 9, 2020, **ECF 535**, on the basis that such a defense,

In its “Order for *Post*-Trial Proposed Findings of Fact and Conclusions of Law,” the Court orders Plaintiffs to set forth “all of the facts relied on to establish liability and just compensation” and “all conclusions of law necessary to demonstrate liability, just compensation, and prejudgment interest” for each Phase II Plaintiff. **ECF 656 at 1**. Although not expressly stated, Plaintiffs assume that the Court is implicitly limiting those proposed findings and conclusions to the issues that were addressed in Phase II inasmuch as the Court has already made findings of fact and conclusions of law as to the Phase I issues and has resolved the same as set forth in *Ideker I*

PROPOSED FINDINGS OF FACT

I. THE GOVERNMENT TOOK A FLOWAGE EASEMENT OVER EACH PLAINTIFF’S PHASE II TRACT, CAUSING SIGNIFICANT LOSSES FOR WHICH JUST COMPENSATION IS OWED

A. Adkins Phase II Tract

1. Takings by Year

1. Ken Adkins testified at trial on behalf of the Robert Adkins & Sons Partnership; himself; Robert D. Adkins, Jr.; and the Estates of Robert D. Adkins, Sr. and Betty Adkins, who died subsequent to the trial in Phase I and have had their estates substituted by the Court as parties in this action. Tr. 45:20–46:8 (Adkins).

2. The Adkins Phase II Tract consists of 1,492 acres of which 950 acres is tillable farmland and adjacent to the river at River Mile 608-611. The crops grown on the farmland are a rotation of corn and soybeans. Tr. 46:23-25; 51:3 (Adkins).

even if allowed, would be “futile,” as a matter of law, given the undisputed facts and the applicable legal standard for resolving such a defense.

3. The Adkins Phase II Tract is surrounded on three sides – the west, south and east – by Federal Levee L-627 and the tieback levee on Indian Creek. The north side is higher ground and borders Interstate 80. Tr. 47:3-8 (Adkins); **PX1270, PX3651, PX3662** (Maps).

4. The Adkins family farms approximately 2,200 acres including the Phase II Tract. Claims have also been brought in this lawsuit for the other acreage. Tr. 51:3-9 (Adkins).

5. Beginning in 2007, the Adkins Phase II Tract experienced increased flooding caused by the MRRP, which was an unexpected change in the pattern of flooding for which they had experienced and which severely interfered with the use and enjoyment of the property. Tr. 53:11-21; 54:17-20; 58:11-15. The MRRP flooding since 2007 has made farming extremely difficult, and has interfered with the investments made in the property, which were initially made based upon a different and much less severe pattern of flooding. Tr. 53:21-25 (Adkins).

6. In 2007, MRRP-caused flooding occurred on the property in April and May during the planting seasons. Four hundred acres were flooded. Flooding of the property outside the levees was the result of overbank flooding, and flooding inside the levees was caused by seepage. About 50 to 60% of the Phase II Tract inside the levees was flooded for about three weeks. Crops were lost. 3/13/18 Trial Opinion [**ECF 426**] (hereinafter “Tr. Op.”), p. 173; Tr. 54:13-20; 62:11-12 (Adkins).

7. In 2008, MRRP-caused flooding was similar to the 2007 flooding in severity, duration and damage. However, the flooding occurred in late June, later than in 2007. Again, crops were lost. Tr. Op. at 174; Tr. 56; 67:23-25 (Adkins).

8. In 2010, the MRRP-caused flooding was similar to 2007 and 2008, but the water was higher and stayed longer against the levees. Flooding occurred in late June and crops were

lost. Blocked drainage, seepage and overbank flooding occurred. Tr. Op. at 175; Tr. 68:8-10 (Adkins).

9. The Adkins family did not begin to question the cause of the new flooding being experienced after 2007 until after the flooding in 2010. Mr. Adkins was not aware until sometime later that the MRRP had led to the deprioritization of flood control and other changes which were enacted in 2004. Tr. 81:25–82:5 (Adkins).

2. Historic Flooding

10. The Adkins property experienced some degree of flooding from seepage and/or blocked drainage in 1967, 1984, 1993 and 1995. The flooding that has been experienced post-2004 is much different than the prior flooding. Tr. 57:8-16 (Adkins).

3. Reasonable Investment-Backed Expectations

11. Mr. Adkins grew up and has spent all of his life at or near the Phase II Tract. Over time, the Adkins family invested in acquiring additional tracts of land. Robert and Betty Adkins, Sr. settled on the Phase II Tract in 1948. Mr. Adkins, his brother, and his parents all built homes next to each other on the northern portion of the tract which is situated on higher ground. Tr. 75:25–76:9; 48:14-17 (Adkins).

12. After the closure of the dams, the Adkins family proceeded to invest millions of dollars in the development and farming of the Phase II Tract and the other ground they own near the river. But for the Government's assurances of flood control due to the mainstem system and the BSNP, and the enhanced flood protection that was afforded beginning in the last century upon completion of the mainstem system, the Adkins family would not have made these investments. The Adkins family relied on what the Government represented. Tr. 78:21–79:14 (Adkins).

13. The Adkins family felt their reliance was reasonable and justified because of public statements by the Federal Government and the construction of Federal Interstate 29 and Offutt Air Force Base near them and close to the river. Tr. 79:15–80:1 (Adkins).

4. **The MRRP Is Continuing to Cause Additional Flooding on the Property and the Flowage Easement Is Permanent**

14. The MRRP flooding that occurred beginning in 2007 continues up until today. Prior to the MRRP, the flooding patterns of the river were fairly predictable. That is not the case now. Tr. 60:12-20 (Adkins).

15. In 2016, a high Missouri River in June and July caused blocked drainage and/or seepage on the Phase II Tract, water backed up into the ditches causing wet fields and blocked drainage. Crops were lost and yields were adversely impacted. Tr. 59:2-6 (Adkins).

16. 2017 was very similar to 2016. Tr. 59:7. In 2018, crops were planted and looked good up until the middle of June when a high river blocked drainage, and all the crops outside the levee and within a half-mile inside the levee were lost. Floodwaters remained on the property from June 2018 through Thanksgiving. Tr. 59:8–60:5 (Adkins).

17. The changed river due to the MRRP is evidenced by a change in the observed water surface elevations that now block the drainage conduits. Tr. 80:2-19 (Adkins); 263:17–264:1 (Ideker).

18. The levee flood gates and pressure relief wells required little to no maintenance because they were seldom used or needed. They were overgrown with trees, weeds, brush and had rocks up against them. That is no longer the case with the MRRP. The flooding is much different now than before. Tr. 81:18-24; 82:5-6 (Adkins).

19. The MRRP flooding has jeopardized the Adkins Phase II Tract, their homes, and their entire way of life. Tr. 85:16-20 (Adkins).

5. Quantification of Losses by Dr. Bateman²

20. The Adkins Phase II Tract includes farm numbers 813, 3092, 4077, 4640 and 4033 which total 950 acres. However, the accounting and insurance reporting documents that exist do not align with those farms as separate tracts. Rather, the FSA and federal crop insurance records include tracts other than the Phase II Tract but for which the Adkins Plaintiffs are making claims for in this case. Adkins owns considerable other property besides the Phase II Tract, which when added together average 1,703 acres of annual plantings. It is not possible to accurately separate the yield data for only the five farms designated as the Phase II Tract from the other planted acres, although Mr. Adkins and Dr. Bateman made their best effort to do so. In the end, Dr. Bateman testified it makes little difference with respect to the losses per-acre figure that can be used to determine the Adkins Phase II losses. Tr. 700:21–701:21 (Bateman); 51:10–52:5 (Adkins).

21. The losses for the Adkins Phase II Tract for the three years of MRRP flooding (2007, 2008 and 2010), as identified by Plaintiff Adkins, include the loss of crops, corn and soybeans. Tr. 701:23–702:7 (Bateman); **PX3243** (Adkins Interrogatory Responses).

22. **PX3244** is Dr. Bateman's analysis of the Adkins corn and soybean losses for the subject years on the 1,703 acres. The table contains the loss summary by year without interest. Commodity prices from Bartlett Grain in Council Bluffs and Heartland Coop in Mills County were used to obtain the dollar losses. Tr. 702:8-16 (Bateman).

23. The Adkins crop losses due to the MRRP flooding include \$1,051,444 for corn and \$719,929 for soybeans, for a total of \$1,771,373 without interest. **PX3244**. **PX3306** and **PX3307** (Charts); Tr. 703:23–706:4 (Bateman). Adkins' total losses with interest calculated by Dr.

² Dr. Bateman's qualifications, methodologies, and calculations are addressed in Section VI, *infra*, including his interest rate calculations for delay damages.

Bateman through June 30, 2020, using the bond-equity rates and compounded quarterly total \$4,136,963. Tr. 708:4–710:5; 711:13-19 (Bateman); **PX3246, PX3247-A** (Loss Charts).

6. Valuation of Permanent Flowage Easement

a. Ken Adkins' Valuation of His Tract

24. Mr. Adkins believes the appraisal conducted by Leo Smith for the Adkins Phase II Tract is too conservative. Tr. 69:15-16 (Adkins).

25. The Federal Government, for the purposes of levee repairs and/or reinforcement, went through formal condemnation proceedings on property owned by the Adkins family adjacent to the Phase II Tract, inside the levee, in that condemnation proceeding, the court awarded just shy of \$12,000 per acre for that taking, almost double the appraisal value provided the Court by Leo Smith. Tr. 69:15–70:5 (Adkins).

26. Mr. Adkins, as the duly authorized representative of the owners of the Adkins Phase II Tract, believes the value of the 220 acres located outside the federal levee as of 2010 was \$6,000 to \$8,000 per acre, and that the value of the 754 acres inside the levee was \$8,500 to \$10,000 per acre. Tr. 70:10-15 (Adkins).

27. Mr. Adkins believes that as of December 31, 2014, the value of the 220 acres outside the levee was \$3,000 per acre, and the value of the 754 acres inside the levee was \$8,500 to \$10,000 per acre. Land along the river that is subject to the MRRP flooding has not appreciated much since 2014 due to the flooding. Tr. 71:2-7 (Adkins).

28. Mr. Adkins places the fair market value of the 77 acres of residential property as of December 31, 2014, at \$17,000 to \$18,000 per acre, and opines that the property has the same value today as it had in 2014. Mr. Adkins places the fair market value of the 69 acres of development property at \$44,000 per acre as of today, and opines that the value of that

development property as of December 31, 2014, was \$35,000 per acre. Tr. 72:25–73:12; 74:21–25 (Adkins).

b. Leo Smith’s Appraisal of the Adkins Tract

29. Mr. Smith’s testimony is credible and reliable in placing a fair market value of the Adkins Phase II Tract.

30. In conducting the land appraisals, the Plaintiffs’ appraisers utilized both a sales comparison approach and income approach in determining the fair market value of the Phase II Tracts so as to confirm the appraised value. Tr. 324:13–21 (Smith for Adkins); 461:13–22 (Keller for Ideker and Buffalo Hollow).

31. Both Mr. Smith’s and Mr. Keller’s analyses, opinions and conclusions were developed, and their reports were prepared, in conformity with the Uniform Standards of Professional Appraisal Practice, also called USPAP. Tr. 320:19–24 (Smith); 457:1–14 (Keller).

32. The appraisals were developed and prepared in conformity with the Uniform Standards for Federal Land Acquisition, also called the Yellow Book. Tr. 320:25–321:8 (Smith); 457:1–14 (Keller).

33. Both Mr. Smith and Mr. Keller previously completed Yellow Book appraisals for the Federal Government, including for the U.S. Army Corps of Engineers. Tr. 321:22–322:13 (Smith); 545:7–546:9 (Keller).

34. Both Mr. Smith and Mr. Keller are local appraisers that are familiar with Missouri River bottom farmland. Tr. 323:3–7 (Smith); **PX3031** (Smith’s CV); Tr. 455:15–456:19 (Keller).

35. Mr. Smith considered different ways to appraise the Adkins Phase II Tract, but ultimately decided to divide it into four appraisals after considering the highest and best use of each tract. Tr. 317:19–22, 25–318:11 (Smith).

36. The appraisal of the Adkins Phase II Tract inside the levee is approximately 754.52 acres of improved farmland of which 698.03 acres are tillable and 47.92 are timberland. Tr. 325:13-16 (Smith). The appraised market value using the sales comparison approach of the Adkins Phase II Tract inside the levee was \$6,700 per acre or \$5,055,000 as of December 31, 2014. Tr. 331:7-20 (Smith); **PX3035** (Appraisal Summary); **PX3037** (Opinion of Value).

37. The Adkins Phase II Tract outside the levee is 221.57 acres of unimproved farmland with 98.08 tillable acres and 72.28 acres enrolled in the Forest Reserve. Tr. 335:17-22 (Smith); **PX3058** and **PX3059** (Maps). The appraised fair market value of the Adkins Phase II Tract outside the levee, using the sales comparison approach, was \$2,300 per acre or \$510,000 as of December 31, 2014. Tr. 340:16-19 (Smith).

38. The appraisal of the Adkins Phase II Tract of development land is approximately 69.57 acres of improved farmland. Tr. 344:4-6 (Smith); **PX3081** and **PX3082** (Maps). The appraised market value of the Adkins Phase II Tract development land, using the sales comparison approach, was \$31,000 per acre or \$2,157,000. Tr. 351:12-15 (Smith); **PX3078** (Opinion).

39. The appraisal of the Adkins Phase II Tract of residential land is approximately 77.80 acres of improved farmland. Tr. 351:24-352:9; **PX3069**, **PX3070** (Maps). The appraised fair market value of the Adkins Phase II Tract residential land, using the sales comparison approach, was \$17,000 per acre or \$1,328,000. Tr. 356:24-357:3 (Smith); **PX3066** (Opinion).

c. **Dr. Babcock's Valuation of the Permanent Flowage Easement³**

40. Dr. Babcock calculated the value of the Permanent Flowage Easement for the Adkins Phase II Tract to be \$1,530,268. **PX3360** and **PX3364** (Charts); Tr. 1071:3-8; 1075:17-19; 1076:15-23 (Babcock).

³ Dr. Babcock's qualifications, methodologies and calculations are addressed in Section VII, *infra*.

7. **Total Just Compensation Owed**

41. Plaintiff Adkins' total losses, without interest, pursuant to Dr. Bateman's calculations are \$1,771,373. The loss calculation by Dr. Babcock for the value of the permanent flowage easement equates to \$1,530,268. The total losses, without interest, are \$3,301,641. **PX3364** (Chart); Tr. 1075:17-19; 1076:15-23 (Babcock).

42. Plaintiff Adkins' losses, with interest, using the AGG/SPY interest rates compounded quarterly, as calculated by Dr. Bateman, are \$4,136,963. Adding Dr. Babcock's valuation for the permanent flowage easement of \$1,530,268, the total losses for Plaintiff Adkins are \$5,667,231. **PX3365** (Chart); Tr. 1077:3-6, 10-17 (Babcock).

43. Plaintiff Adkins' losses, using Moody's Corporate Bond Index, compounded quarterly, as calculated by Dr. Bateman, equate to \$3,209,120. Adding the value of the permanent flowage easement, as calculated by Dr. Babcock, \$1,530,268, the total losses for Plaintiff Adkins are \$4,739,388. **PX3365-A** (Chart); Tr. 1077:18–1078:3 (Babcock).

B. Ideker Farms Phase II Tract

1. Takings by Year

44. The Ideker Phase II Tract is a 1,493-acre irrigated tract of tillable ground situated two miles along the east bank of the river in Holt County, Missouri, at River Mile 510-512. It is the largest contiguous piece of farmland in Holt County, with only 55 non-irrigated acres being situated along the river outside the levee. The farm averaged 1,377 acres planted in the years 2007, 2008, 2010, 2013, and 2014. The Idekers plant half in corn and half in beans. They plant a limited amount of wheat and alfalfa. Tr. 281:2-15 (Ideker).

45. The improvements on the Ideker Phase II Tract include a farm home, a shop, implement buildings, grain bins, fuel tanks, irrigation equipment facilitated by wells that the Idekers dug, and a river home. Tr. 218:9-11, 19-23; 219:1-5, 22–220:1, 6-7 (Ideker).

46. Ideker Farms did not become aware that the MRRP changes were causing or contributing to cause the new, ongoing flooding pattern until sometime during 2013 when the expert opinion was received from Dr. Hromadka. Tr. 229:13-17 (Ideker).

47. The new flooding pattern from 2007 through 2014 has been extremely serious and detrimental. Mr. Ideker testified that it adversely and substantially impacted their farming operation, and has further substantially adversely impacted their use and enjoyment of the property for hunting, fishing, boating and family events. The flooding during this period of time forced evacuation of the farm home, and it likewise deprived the Ideker family of the use and enjoyment of the river cabin for prolonged periods of time. Tr. 231:24–232:11 (Ideker).

48. Mr. Ideker opined the MRRP caused the losses sustained. Tr. 232:22-23 (Ideker).

49. In 2007, the MRRP flooding engulfed all farmable acreage. The intrusion was severe, lasting 30 to 60 days beginning in May when floodwaters entered the farm from the south and east, coming from the Thurnau mitigation site. Floodwaters were 2 to 10 feet deep. The farming operations were interrupted for over 100 days. Tr. 232:24–233:8, 17-23 (Ideker).

50. In 2007, grain bins and irrigation equipment were damaged or destroyed. Crops were lost. Some land reclamation was necessary. The 55 acres riverward of the mainline levee were flooded. The river cabin outside the levee flooded for the first time and required extensive renovation. The roadway to the cabin was washed out and had to be rebuilt; the Idekers' access to the river cabin was negated for over six months. All crops lost and all related damages sustained were caused by the MRRP flooding. Tr. 233:24–234:9 (Ideker).

51. Flooding in 2008 was similar to that of 2007. The intrusion was substantial and severe, flooding 80 to 90% of the farm beginning in mid-June and lasting 30 to 45 days. Like 2007, the hole in the levee system at Thurnau allowed floodwaters to enter the wetlands mitigation

site and wrap around onto the Ideker farm. An extensive sandbagging operation on the southeast corner of the farm helped block some, but not all of the Thurnau waters from entering the farm. The farm still sustained significant damage. Tr. 234:10–235:2 (Ideker).

52. In 2008, irrigation equipment again sustained damage from the MRRP flooding. Land reclamation was again required. The drainage ditches on the property filled and flowed over the crops with standing water from one inch to a foot deep. The north 200 acres was spared. The crops on the south end of the farm died, but were replanted. The soybeans planted late due to the flood produced low yields. The 55 acres riverward of the mainline levee again flooded due to the overbank flooding, much like 2007. Crops were lost. The river cabin and the roadway to the cabin were again flooded and required renovation. The Idekers' use of the cabin was again negated for over six months. The inundation impacted the Idekers' ability to farm for over 100 days. Tr. 235:3-24 (Ideker).

53. The flooding in 2010 was much worse than that in 2007 and 2008. Overbank flooding was again experienced on the west side of the farm with floodwaters covering the 55 acres beginning in June. Once again, high waters entered Thurnau and wrapped around to the Ideker farm. Sandbagging on the southeast corner of the farm to block the Thurnau floodwaters again took place, and were largely successful until the mainline levee breached on the northwest corner of the farm leaving a huge 90-foot-deep scour hole and inundating the entire farm. Tr. 236:3-18 (Ideker).

54. The entire farm was flooded in 2010 for approximately 90 days, with floodwaters on the north end of the farm reaching three feet in depth, and 11 to 13 feet in depth on the south end of the farm. **PX1575-B** is a photo showing the 2010 levee breach site on the northwest side

of the river farm where the scour hole occurred. **PX1575-A** is a photo of the Ideker farm engulfed with the MRRP floodwaters during the 2010 flood event. Tr. 236:19–237:23 (Ideker).

55. In 2010, the farm, homes, structures and equipment sustained extensive damage. Crops were lost. The farm home flooded and had to be demolished and replaced. The use of the farm home was lost close to one year. The river cabin and roadway to it were again flooded and required extensive renovation. Use of the cabin was lost for nine months. Up to five feet of sand was left on 60 to 70 acres in the northwest area of the farm in the vicinity of the levee breach. The inundation and residual effects of the flooding, including the cleanup, adversely impacted the Idekers' ability to farm the land for over 180 days. Tr. 237:11–238:2 (Ideker).

56. Following the 2010 flooding, the Idekers used grading equipment to remove the sand, and relocate and rebuild the mainline levee on the west and on the south, widening it two to three feet and raising it two feet, which exceeded the federal levee specifications. Additionally, the Idekers built new levees on the east side of the farm to negate floodwaters entering the farm from Thurnau on the east side in the future. This represented a substantial investment by the Idekers to repair and renovate the farm, as well as to provide more protection from future flooding. Tr. 238:3-13 (Ideker).

57. Because of the 2010 breach of the mainline levee on the northwest corner of the farm, the levee had to be relocated around the large scour hole which was left by the flooding. Eighteen acres of very good, tillable farmland was lost due to the scour hole and realignment of the mainline levee. The fair market value of the acreage lost due to the scour hole was \$8,500 per acre, according to Roger Ideker, but Dr. Bateman used a value of \$8,250 for the land. Ideker opined that the loss of crops and all related damages were caused by the MRRP flooding. Tr. 238:20–239:19; 667:21–668:1 (Ideker).

58. The Ideker farm was again flooded in 2013, beginning in May and lasting 30 to 45 days. The 55 acres riverward of the mainline levee flooded from overbank flooding. There were no levee breaches. Crops were lost. Interior drainage was blocked, causing seepage during the time of the high river, adversely impacting farm efforts. An estimated 700 acres of the farm inside the levee were impacted, or 50 to 60% of the total farmable acreage. The Ideker farming operation and access to the new river home were adversely impacted. The inundation and residual effects to the Idekers' ability to farm the land exceeded 100 days. Mr. Ideker opined that the loss of crops and related damages were all caused by this MRRP flooding. Tr. 239:22–240:21 (Ideker).

59. The 2014 flood event at the Ideker farm was much like 2013 beginning in June with peak water in late June, and drainage was impacted periodically from June through October, adversely impairing farm efforts. Water reached the base of the mainline levee on the west, and was estimated at one to two feet over bank. Crops were lost. The new river home constructed after the 2011 flood did not flood, but access to and use of the river home was negated for over 60 days. Like 2013, 50% to 60% of the farmable acreage was impacted. The inundation and residual effects to the Idekers' ability to farm the land exceeded 100 days. Mr. Ideker opined that the crop loss and all related damages were caused by this MRRP flooding. Tr. 240:22–241:19 (Ideker).

2. **Historic Flooding**

60. The Ideker Representative Property flooded in 1952, 1962 and 1967 – all prior to the mainstem system becoming fully operational – and then in 1984 and 1993. Tr. 261:8-13 (Ideker).

3. **Reasonable Investment-Backed Expectations**

61. Although the Ideker Phase II Tract when acquired was prone to flooding and had to be cleared of trees and brush, the Ideker family acquired the property with the expectation that the Federal Government's promised new flood protection through the new dams, reservoirs and

levees, as well as the BSNP, would allow the ground to be productive. The Government's extensive efforts to develop the Basin by facilitating flood control were made public, and in purchasing and investing in the Phase II Tract, the Idekers relied upon as many publications and representations that flooding would be substantially reduced. Tr. 221:19–222:19 (Ideker).

62. The Government encouraged the citizenry to invest in the Basin, including the clearing and farming of land. *See, e.g.*, **PX1** (Cross-Section Photo). The Government endeavored to make farming along the river economically possible. In reliance thereon, the Ideker family began investing heavily to develop the land for farming. Tr. 222:20-24; 223:17-20, 25 (Ideker).

63. The levees protecting the Ideker farm are all private levees built to meet or exceed federal specifications and were built, paid for and maintained by the Ideker family until 1973 and Plaintiff Ideker Farms, Inc. thereafter. This represents an investment of millions of dollars. Additionally, Ideker Farms has invested hundreds of thousands of dollars in equipment, including irrigation equipment, in planting beans and corn, and harvesting crops. Drainage ditches and two drainage conduits were constructed at significant cost. Wells were dug for irrigation of the farm. These investments in the farm were prompted by the reasonable investment-backed expectations of the Idekers that the land would be suitable and productive for farming, as well as for the use and enjoyment without repetitive, atypical flooding based upon the public representations of the Federal Government. Tr. 225:10–226:14 (Ideker).

64. It cost the Idekers about \$750 per acre to plant a crop of corn, and \$550 per acre to plant a crop of beans. The Idekers planted an average of 645 acres of corn and 733 acres of beans each year for an average total planted acreage of 1,378 acres. So their total investment for planting each year averaged \$483,750 for corn and \$403,150 for beans, for a total of \$886,900. This in and of itself represents a substantial business investment. Tr. 226:15-24 (Ideker).

65. After the MRRP flooding began in 2007, the Idekers took steps to prevent the flooding and protect their property. These efforts included the rocking of the river bank to abate erosion and preserve the mainline levee and river cabin/home situated close to the river. It also included the repair of the existing levees breached or damaged as a result of the flooding, as well as the building of new levees on the east side of the property – all at substantial expense. Tr. 227:11-19; 238:1-10 (Ideker).

66. The Idekers did not anticipate or expect the MRRP flooding. **JX7** (Roger Ideker 1/29/20 Deposition, 86:21-87:16, per 7/30/20 Order [ECF 647]); Tr. 229:13-17 (Ideker).

4. **The MRRP Is Continuing to Cause Additional Flooding on the Property and the Flowage Easement Is Permanent**

67. The Ideker Phase II Tract has flooded every year since 2014 through 2018, which Roger Ideker described as being consistent with the MRRP flooding experienced between 2007 and 2014. Tr. 244:10–245:3 (Ideker).

68. In 2015, overbank flooding like that in previous years was again experienced over the 55 acres on the west side of the farm outside the levee, with associated blocked drainage inside the levee which adversely impacted farm efforts. There were no crops planted on the 55 acres at the time. The new river home on the acreage, now setting at a rebuilt higher elevation, was not damaged. Water again reached the base of the levee and was estimated at one foot over bank. Six hundred to 700 acres of the interior farm was impacted by blocked drainage and seepage. Fifty to 60% of the farmable acreage flooded. Tr. 245:10-25 (Ideker).

69. In 2016, the flooding experienced was much like that in 2015, but worse. Overbank flooding was experienced over the 55 acres on the west side of the farm outside the levee in May-June 2016. Due to blocked interior drainage and seepage, 200 acres of cropland inside the levee were not planted. No crops were planted on the 55 acres outside the levee next to the river. The

interior farm was again impacted by blocked drainage and seepage. Over 800 acres of farmable acreage flooded, or about 60% of the farm. Tr. 246:1-16 (Ideker).

70. In 2017, the flooding was very much like that of 2016 as the river continued to run high. Overbank flooding occurred on the 55 acres without reaching the interior of the new river home. No crops were planted on the 55 acres. Blocked drainage and seepage again resulted, adversely impacting farm efforts. Over 800 acres of the farmable acreage flooded, or about 60% of the farm. Tr. 246:17–247:1 (Ideker).

71. After experiencing repeated ongoing flooding in 2017, the ninth time in 11 years, the Idekers made the decision to terminate their efforts to farm the land themselves and leased the interior farm effective March 1, 2018, for \$260 per acre. The 55 acres outside the levee, which includes the new river home, were not part of the lease. The property was still under lease at the time of trial. Tr. 227:4-10; 247:2-12 (Ideker).

72. In 2018, a high river for most of the year periodically flooded the 55 acres over bank and created severe problems inside the levee with blocked drainage and seepage. Planting was hampered and the harvest was delayed until late 2018. The Ideker drainage tubes were blocked over 300 days during 2018. Flooding plagued the efforts to farm the entire year. Tr. 247:13-25; 248:3-6 (Ideker).

73. The erosion of the Johnson Tract immediately north and adjacent to the Ideker Phase II Tract is illustrative of the ongoing results of the MRRP which seeks to create floodplain connectivity. **PX15** at USACE0001760 (2003 BiOp); **PX18** at FWS_00039580-581 (March 2005 Overview Report). The Johnson Tract is seriously eroding and losing ground along the bank. Tr. 249:24–250:10 (Ideker); **PX1579-D** (photo of notch taken December 8, 2015, shows erosion beginning in the bank due to notching, the Johnson drainage tube can still be seen in place, but

exposed); **PX3204** and **PX3205** (photos of the same Johnson Tract location as of November 23, 2018, prior to 2019 flooding, looking north from Ideker Phase II Tract to the Johnson property). The Johnson land adjacent to the river, shown in the photos, was drastically cut further east approximately 180 feet or more; the river has now cut due north of the Ideker river home and poses a threat to take it out if not abated. Tr. 250:14–251:11; 252:19–253:4; 253:23–254:8 (Ideker).

74. No dikes or revetments have been restored near the Ideker Phase II Tract. The Deroin Bend chute located on the east side of the river, north of the Ideker Phase II Tract, since 2017 is cutting a new side channel on the west or Nebraska side of the river, taking private land and further widening the river in that locale. During high-water events, the chute directs water at a high velocity toward and into the west bank. Tr. 258:12–259:5 (Ideker).

75. It will take years to reconstruct and rehabilitate the thousands of river control structures up and down the river. Tr. 259:18-25 (Ideker).

76. The same new pattern of flooding caused by the MRRP from 2007-2014 has continued ever since. This new pattern is different than before 2007. Blocked drainage on the Bellwether properties since 2007 is now commonplace. The Ideker drainage conduits now block at 9 feet on the Rulo gage whereas prior to 2007, the conduits blocked at 13 feet. Tr. 259:13-17; 263:17–264:1 (Ideker).

77. Communities bordering the river in Missouri, Iowa and Nebraska have been destroyed or substantially destroyed since 2007 as a result of the ongoing flooding. Tr. 264:21–266:7 (Ideker).

78. After the big flood of 2011, the Corps' General McMahon told river residents, including some of the Plaintiffs, to “do their part” and “move out.” Phase I Trial Tr. 3540; Phase II Tr. 266:8-12 (Ideker).

5. Quantification of Losses by Dr. Bateman

79. The Ideker losses as identified by Plaintiff Ideker include crop losses, land reclamation, flood prevention, structure and equipment losses and land loss, as well as interest on the time value of money lost due to delay in reimbursement for the takings. Tr. 639:11-20 (Ideker).

80. The losses for the Ideker Phase II Tract due to the MRRP flooding total \$4,036,234 without interest. Tr. 639:4-10, 666:16–668:25 (Bateman); **PX3232** (Loss Chart).

81. The Ideker Phase II Tract corn losses, totaling \$1,430,143 (**PX3228**), were calculated by Dr. Bateman utilizing **PX3227**, **PX3228**, **PX3302** (Charts). Tr. 640:9-18; 648:25–649:5; 649:24–650:3 (Bateman). The Ideker Phase II Tract soybean losses, totaling \$915,309, and wheat and alfalfa losses totaling \$43,200 (**PX3229**), were calculated by Dr. Bateman utilizing **PX3227**, **PX3230**, **PX3303** (Loss Charts). Tr. 652:21-25; 655:16-17, 22-24; 657:3-12; 658:16–659:2 (Bateman). The Ideker Phase II Tract structure, equipment, reclamation, land loss and flood prevention losses, totaling \$1,647,582, are set forth in **PX3231** (Chart); Tr. 659:22–662:15 (Bateman).

82. Ideker Farms utilized the Ideker family's construction company, Ideker, Inc., to do the renovation work on the Ideker Phase II Tract following the flood events. This work included flood debris cleanup, removal of sand deposits, and repair, renovation and building of levees. Ideker, Inc. billed Ideker Farms less than the Federal Government's specified rates for which Ideker, Inc. had performed work. The rate charged to Plaintiff Ideker Farms for this work, for which a claim is brought herein, did not include any profit or overhead added to it, which Dr. Bateman described as conservative. Tr. 242:5–243:2; 666:6-14 (Bateman).

83. The Ideker interest rate analysis, as conducted by Dr. Bateman, measures the takings and the earnings year by year as they are invested 50/50 at the time of the takings in the AGG and SPY ETFs, and also rebalanced at the end of each year. **PX3233** (Interest Rate Analysis).

The total fair market value of the takings losses sustained by the Ideker tract equates to \$4,036,234; and with interest, using the bond-equity interest calculations, compounded quarterly, total \$9,217,984 through June 30, 2020. Tr. 669:18-24 (Bateman); **PX3234** (Loss Calculation Chart).

6. Valuation of Permanent Flowage Easement

a. Roger Ideker's Valuation of His Property

84. Farmland values in the Midwest began appreciating between 2006 and 2007. By 2010, as the authorized representative of the owner, Roger Ideker believes the Ideker Phase II Tract had a value of \$8,500 per acre. Due to the ongoing flooding along the river, the appreciation of farmland near the river slowed between 2010 and 2014, while it continued to appreciate inland. Tr. 249:9-16 (Ideker).

85. The productivity of the Plaintiffs' Phase II Tracts has been hurt by the MRRP flooding which has impacted their value. Tr. 257:3-6 (Ideker).

86. Farm machinery and equipment have become larger to enhance efficiency in farming. Large tracts like the Ideker Phase II Tract are particularly useful in maximizing the efficiencies made possible by the larger farm machinery, making larger tracts like the Ideker Phase II Tract more valuable. Tr. 256:11–257:2 (Ideker).

87. Roger Ideker believes that the fair market value of the Ideker Phase II Tract as of 2010 would have been at least \$8,500 per acre, and as of the end of 2014, at least \$9,000 per acre. Tr. 257:7-15; 257:21–258:2 (Ideker).

b. Tim Keller's Appraisal of the Ideker Farms Tract

88. Mr. Keller's testimony was credible and reliable for the purpose of placing a fair market value appraised value on the Ideker Farms and Buffalo Hollow Farms Phase II Tracts.

89. The improvements on the Ideker Farms Phase II Tract include a farm home, river cabin/home, shop building, storage sheds, fuel tanks, grain bins and irrigation equipment. **PX3269** and **PX1579-A** (Photos); Tr. 473:13-24 (Keller).

90. The Ideker levees, constructed by the family's construction company, as stated above, enhance the value of the property. Tr. 475:11-21 (Keller).

91. Mr. Keller, using the sales comparison approach, appraised the Ideker Farms Phase II Tract at \$8,250 per acre, or \$12,330,000 as of December 31, 2014. **PX3273** (Chart – Sales Comparison Conclusions); Tr. 478:19-23; 480:3-13; 483:8-12 (Keller).

92. Mr. Keller placed the range in sale prices for Missouri River bottomland in northeast Kansas and northwest Missouri to be between \$6,500 per acre to \$8,250 per acre. Tr. 483:13-17 (Keller).

c. **Government's 2014 Acquisition of Land to Expand the Thurnau Mitigation Site**

93. On January 24, 2014, the Federal Government acquired a 120.88-acre tract of river bottom farmland in Holt County west of Craig, Missouri, known as the "Holland Tract," to expand the Thurnau Wildlife Refuge which is located south and adjacent to the Ideker Phase II Tract. Tr. 478:25–480:12 (Keller).

94. **PX3215** (USACE0251495, *et seq.*) is the documentation produced by the Government related to this land purchase transaction, and **PX3216** (Thurnau Appraisal) is the appraisal of the property dated July 17, 2013, as requested by the Federal Government and conducted by Government-chosen appraisers. Tr. 479:23–480:2 (Keller).

95. The Holland Tract was appraised at the request of the Corps using the Yellow Book and an Agriculture Appraisal Report was prepared by the appraisers on July 22, 2013 (before this

lawsuit was filed in March 2014), which provided the price the Government paid to acquire the property. *See* **PX3216** (Thurnau Appraisal) at USACE0251639, 0251649; Tr. 255:13-25 (Keller).

96. The July 17, 2013 appraisal of the Thurnau Tract by local appraisers selected by the Federal Government and reviewed by a Government appraiser in Kansas City is significant, not only in confirming the appraisals done in this case by Plaintiffs' appraisers, but the Government's appraisal was done before this lawsuit was filed in March 2014. **PX3216** (Appraisal); Tr. 479:8-12; 480:3-23; 482:19-25 (Keller).

97. The land sold for \$950,000, or \$7,851 per acre, plus \$594 per acre to clean up sand deposits left by the 2011 flood, for a total indicated price of \$8,445 per acre. Tr. 479:8-13 (Keller); Tr. 254:9-19 (Ideker); *see* **PX165** at PLTF-00002061-65 (Aug. 2013 USACE Offer to Purchase Ideker Property); **PX3216** at USACE0251639, 0251643, 0251649 (Appraisal).

98. The Holland Tract was not irrigated, unlike both the Buffalo Hollow and Ideker Farms tracts. Tr. 479:14-15 (Keller). Roger Ideker testified "our farm is substantially better" and "should have been worth more." Tr. 254:22-258:19 (Ideker); *also see* Tr. 168:14-24 (Schneider).

99. The purchase price for the Holland Tract is a very good indicator of the market value the Government placed on Missouri River bottom farmland in that area at that time, and is consistent with the appraisals of the Ideker and Buffalo Hollow Tracts. Tr. 479:16-22 (Keller).

d. **Dr. Babcock's Valuation of the Permanent Flowage Easement**

100. Dr. Babcock calculated the value of the Permanent Flowage Easement for the Ideker Farms Phase II Tract to be \$3,698,887. **PX3360** and **PX3364** (Charts); Tr. 1071:3-8; 1075:17-19; 1076:15-23 (Babcock).

7. **Just Compensation Owed**

101. Plaintiff Ideker's total losses, without interest, pursuant to Dr. Bateman's calculations are \$4,036,234. The loss calculation by Dr. Babcock for the value of the permanent

flowage easement equates to \$3,698,887. The total losses, without interest, are \$7,735,121. **PX3364** (Chart); Tr. 1075:17-19; 1076:15-23 (Babcock).

102. Plaintiff Ideker's losses, with interest, using the AGG/SPY interest rates compounded quarterly, as calculated by Dr. Bateman, are \$9,217,984. Adding Dr. Babcock's valuation for the permanent flowage easement of \$3,698,887, the total losses for Plaintiff Ideker are \$12,916,871. **PX3365** (Chart); Tr. 1077:3-6, 10-17 (Babcock).

103. Plaintiff Ideker's losses, using Moody's Corporate Bond Index, compounded quarterly, as calculated by Dr. Bateman, equate to \$6,860,034. Adding the value of the permanent flowage easement, as calculated by Dr. Babcock, \$3,698,887, the total losses for Plaintiff Ideker are \$10,558,921. **PX3365-A** (Chart); Tr. 1077:18–1078:3 (Babcock).

C. Buffalo Hollow Farms Phase II Tract

1. Takings by Year

104. The Buffalo Hollow Farms Phase II Tract consists of 1,274 acres located in Doniphan County, Kansas, north of Troy and adjacent to River Miles 475-478. *See* **PX1707** and **PX1708** (Maps). The 800 acres adjacent to the river, protected by the private levee, are farmed. There are 27 farmable acres outside the private levee on the river side. The land outside the levee is being eroded by the river as the banks are no longer protected. The rest of the acreage, consisting of 447 acres (35% of the tract) is river bluffs. The Schneider family lives in homes on the hillside of the Phase II Tract in the bluffs. Tr. 142:12–143:1; 144:11-13 (Schneider).

105. The Phase II Tract is located across the river from a major wetland mitigation site, Wolf Creek Bend. Further, 11 to 12 control structures (wing dikes/revetments) originally were constructed adjacent to the property on the west side of the river, but were notched since 2004 as part of an affirmative effort to expose the bank to erosion. There was no rebuilding of those river

control structures since trial in 2017. There has been further deterioration of those structures and the river bank during 2018. Tr. 143:5-22 (Schneider).

106. The Schneiders completed construction of the private levee that protects the Phase II Tract in 1985. Tr. 146:16-21 (Schneider).

107. The Corps approached Buffalo Hollow Farms in the 1990s with an interest in purchasing the Phase II Tract in order to turn the ground into wetlands. *See* **PX1725** and **PX1726** (Government Overtures). The Government viewed the Phase II Tract as desirable for flooding and widening the river due to the ongoing MRRP changes. Tr. 150:5-12 (Schneider).

108. The Schneiders did not begin questioning the cause of the flooding until the 2010 flood event. Sometime after that, the Schneiders became aware that the MRRP, the deprioritization of flood control, and changes made to river management in 2004, were possibly causing or contributing to cause the changed pattern of ongoing flooding. They received confirmation that the MRRP was causing the flooding in the latter half of 2013 from Plaintiffs' experts. Tr. 150:22–151:13 (Schneider).

109. The Buffalo Hollow Farms Phase II Tract has experienced atypical flooding since 2007 in all years except the drought years of 2009 and 2012. The severity of interference with the Phase II Tract as a result of this flooding has been great. The farming since 2007 has been made difficult and impossible at times due to the flooding. Tr. 152:19–153:3 (Schneider).

110. Not only has the flooding since 2007 been detrimental to the Schneiders' farming operations, it has substantially adversely impacted their use and enjoyment of the property for hunting, fishing, four-wheeling and family events. Tr. 153:9–154:1 (Schneider).

111. Mr. Schneider opined that the actions by the Federal Government pursuant to the MRRP caused all of the losses. Tr. 153:23–154:1 (Schneider).

112. Beginning May 14, 2007, overbank flooding, blocked drainage and seepage occurred on the Phase II Tract. The river was up against the levee 5 to 6 feet. There was seepage up to 2 feet in depth on the inside of the levee with “spongy” soil. Standing water covered 25% of the property inside the levee, and all but 2 to 3 acres outside the levee, but the remaining tillable acreage was flooded by blocked drainage and/or low seepage. Tr. 154:9-19 (Schneider).

113. The Schneiders in 2007, ahead of the flooding, pulled the motors and control panels from their irrigation equipment so the equipment would not be damaged. They also moved their fuel and fertilizer tanks to higher ground. It takes 3 people a full day to get this done to avert further damage and loss, and it takes 3 people two days to reinstall this equipment after the flooding. The inundation was quite significant as crops were lost and there were lower yields on the crops that survived. Top soil eroded. The Schneiders incurred expenses pumping water over the levee. 100% of tillable ground was flooded, which is 65% of the Phase II Tract –all but the river bluffs or hill ground. The inundation and residual effects to the ability to farm the land exceeded 90 days. Tr. 154:20–155:13 (Schneider).

114. Flooding again occurred in 2008 from May 30 through June 21. Overbank flooding was experienced outside the levee, with water 5 to 6 feet deep on the levee. Seepage and blocked drainage occurred inside the levee, with saturated soils 1 to 2 feet deep. 50% of the farm property inside the levee was covered by water, and all but 2 to 3 acres of land outside the levee was covered with water. Blocked drainage and/or seepage inundated the remainder of the tillable acreage. Tr. 155:17–156:3 (Schneider).

115. In 2008, once again the Schneiders removed the equipment and control panels from the irrigation equipment, and moved the fuel and fertilizer tanks to higher ground to avert damage and loss. Crops were lost, and for the crops that were raised, they resulted in lower yields. Top

soil again eroded. Pumping expense was again incurred with considerable cleanup of debris. 100% of tillable ground was flooded. In the fall of 2008, to enhance drainage in light of the flooding, the Schneiders installed 280 feet of 24-foot drainage tile parallel to the existing smaller drain at a cost of \$7,194. The inundation and residual effects to the ability to farm the land exceeded 90 days. Tr. 156:4-18 (Schneider).

116. In 2010, the Phase II Tract was again inundated with floodwaters June 11 through August 20. Water was 6 feet high up against the levee. Seepage and blocked drainage flooding occurred inside the levee, saturating soils 1 to 3 feet deep. Standing water covered 75% of the farm inside the levee, and all land outside the levee. The remaining tillable acreage was flooded by blocked drainage and/or seepage. Tr. 156:19–157:8 (Schneider).

117. The Schneiders' irrigation equipment and control panels were again broken down and removed in 2010. Their fuel and fertilizer tanks were moved to avert damage and loss. Crops were lost and those that survived had much lower yields. Top soil eroded significantly. Pumping expense was incurred, and there was considerable expense associated with debris cleanup. 100% of the tillable ground was flooded. In the fall of 2010, the Schneiders cut a new drainage ditch on the southeastern part of their farm so that water would pool in the main drainage ditch and they could pump the water out. The total cost of these efforts exceeded \$4,000. The inundation and residual effects to the ability to farm the land exceeded 120 days. Tr. 157:9–158:1 (Schneider).

118. There was flooding on the Buffalo Hollow Farms Phase II Tract in 2013 and 2014, from late May through early June. Overbank flooding occurred over all but 2 to 3 acres outside the levee, with 1 to 2 feet of floodwater up against the levee. Tr. 158:6-15 (Schneider).

119. In 2013 and 2014, all acres outside the levee were covered with water. Blocked drainage and/or seepage occurred inside the levee over at least 70% of the tillable acres on the east

side closest to the levee. Pumping expense was incurred. Crops were lost, and yields and top soil were adversely impacted. The inundation and residual effects to the ability to farm the land exceeded 60 days in each 2013 and 2014. Tr. 158:16-25 (Schneider).

120. In the fall of 2014, the Schneiders continued to try to cope with the ongoing flooding and hauled dirt from the bluff to low areas to facilitate drainage at a cost of \$17,500. Tr. 159:1-5 (Schneider).

2. **Historic Flooding**

121. The Buffalo Hollow Phase II Tract significantly flooded in 1952 and 1967 prior to the mainstem system becoming fully operational, and then in 1973, 1984 and 1993. The 1973 and 1984 flood events took place before the private levee was fully completed. Any other flooding from 1967 to 2007 was not significant and nothing like what they have experienced since 2007. If Buffalo Hollow had blocked drainage or seepage, it did not last long or adversely impact farming operations. This is consistent with the testimony from other Bellwether Plaintiffs given in Phase I, including nearby Plaintiffs. Tr. 146:22–147:4; 167:3-15 (Schneider).

122. Buffalo Hollow Farms did not suffer any significant flooding in the '80s and '90s, as the Government claims, other than in 1984 and 1993. Mr. Schneider cannot remember any time prior to 2007 that water stayed on their farm more than five days. If they had significant flooding, he would have remembered. A big difference is that before the MRRP, the river would rise slowly and then drop quickly. Flooding was infrequent. Now under the MRRP, the river rises fast but drops slowly. As a result, the inundation is much more severe. Tr. 167:16–168:3 (Schneider).

123. Mr. Schneider remembers that they did not flood in 1997 when they experienced the highest runoff in history to that point. Tr. 168:4-8 (Schneider).

124. It takes a high river staying up 5-7 days against a levee for seepage to occur. Duration is significant. **JX8** (Ron Schneider 1/27/20 Deposition, 110:9-25, per 7/30/20 Order [ECF 647]).

3. **Reasonable Investment-Backed Expectations**

125. The Schneider family originally acquired the Phase II Tract in 1962, believing that the new publicized flood protection to be provided by the Federal Government through new dams and reservoirs, and the BSNP, would allow the ground adjacent to the river to be productive and otherwise free from the frequent flooding that had been experienced up until that time. The Schneiders relied in good faith on the Government's public representations that flooding would abate. Tr. 145:13-20; 146:2-5 (Schneider).

126. Buffalo Hollow Ranch transferred title to the Representative Property to Buffalo Hollow Farms in July 2009. Buffalo Hollow Farms absorbed Buffalo Hollow Ranch. Gerald Schneider, Ron Schneider's father, owned both dating back years. No money was exchanged for the transfer of title. **JX8** (Ron Schneider 1/27/20 Deposition, 19:13-21, 20:18-21:14, per 7/30/20 Order [ECF 647]).

127. The Schneiders have invested millions of dollars in the land since acquisition. But for the many Government public assurances of flood control and enhanced flood protection beginning during the last century, the Schneiders and Buffalo Hollow Farms would not have invested in the property as they have done. Tr. 146:6-12 (Schneider).

128. Based upon the Schneiders' long experience with the Phase II Tract prior to 2007, they expected the farm to be productive each year and experience wet years, approximately once per decade. Tr. 147:12-18. (Schneider)

129. It costs Buffalo Hollow Farms \$670 per acre to plant a crop of corn on 579 acres, and \$450 per acre to plant a crop of beans on 248 acres, exclusive of labor costs. So the Schneiders'

total investment for crops per year, exclusive of labor costs, is approximately \$500,000. This in and of itself represents a substantial business investment, in reliance on the flood control they experienced prior to 2007. The Schneiders' substantial investment of millions of dollars in the land for farming since acquisition makes it economically difficult to simply quit trying to farm the ground. Tr. 149:11–150:4 (Schneider).

130. The Schneiders' expectations for their Phase II Tract remained the same until at least 2011. The flooding impacts of the MRRP and the deprioritization of flood control came as a surprise to them. Tr. 151:14-19 (Schneider).

131. The Schneiders did not read anything about the MRRP until after the flood in 2011. **JX8** (Ron Schneider 1/27/20 Deposition, 68:24–70:7, 86:6-13, per 7/30/20 Order [**ECF 647**]).

4. **The MRRP Is Continuing to Cause Additional Flooding on the Property and the Flowage Easement Is Permanent**

132. When blocked drainage or seepage was experienced by the Schneiders on the Phase II Tract prior to 2007, it was not significant or anything like what has been experienced since 2007; it was less frequent, it did not last long, and it did not significantly impact their farming operations. Tr. 147:5-11 (Schneider).

133. In 2015, flooding occurred on two separate occasions in June lasting up to 10 days. There was overbank flooding outside the levee, with 1 to 2 feet of water up against the levee. Seepage and blocked drainage occurred inside the levee. They pumped water off the field for 142 hours at a cost of \$12,780. Crops were impaired and/or lost. On December 16, water was over bank up against their levee. The Schneiders used a skid loader to clean up the debris. This event was very much like 2013 and 2014. Tr. 159:20–160:7 (Schneider).

134. In 2016, flooding against took place May 10 through 31. Seepage and blocked drainage resulted. There was standing water inside the levee which again required pumping. Crops

had to be replanted and planting was delayed. There were other instances of blocked drainage that took place, but the flooding in May was particularly significant. Tr. 160:8-16 (Schneider).

135. In 2017, the river ran high, blocking drainage and causing seepage problems most of the summer. This was longer-lasting than the previous two years, and extensive pumping efforts in May were undertaken and continued. There was overbank flooding outside the levee. 50% of their crops outside the levee were lost. Tr. 160:17–161:2 (Schneider).

136. In 2018, the river ran above normal most of the year, blocking drainage for over 100 days in the summer, fall, and into December. Harvest efforts were significantly impaired. Extensive pumping (90 hours) was undertaken, but at times was not feasible. Overbank flooding outside of the levee occurred. Blocked drainage and seepage occurred again inside the levee constantly for six months. 70% of the crops outside the levee were lost. Pumping has become commonplace and, of course, pumping is very expensive. Tr. 161:3-162:2 (Schneider).

137. Based upon Mr. Schneider's personal ongoing observation of the river on a daily basis, the efforts of the Corps in conjunction with the MRRP, which includes the BSNP Mitigation Project, have continued since 2014 and are ongoing. The river bank is no longer protected from erosion as it was prior to 2004. The wing dikes adjacent to or near the Buffalo Hollow Farms Phase II Tract are essentially gone; they are of no benefit whatsoever in protecting the bank from erosion. Tr. 165:16–166:14 (Schneider).

138. The river runs higher than it did prior to 2004. Once they get flooding the water stays much longer than before. Buffalo Hollow Farms is now flood-prone by overbank flooding and/or blocked drainage and/or seepage. Moreover, crop insurance payments continue to increase, and because of the lost productivity, the benefits received decrease. So they are paying more for less. Tr. 166:15–167:1 (Schneider).

139. The river changed after the advent of the MRRP in 2004. This includes a river running higher, rising faster, reaching higher peaks, and staying on the land much longer. Buffalo Hollow Farms' drainage culvert is now blocked much more frequently and for prolonged periods of time. They flood each year. Tr. 168:19–169:4 (Schneider).

5. Quantification of Losses by Dr. Bateman

140. The Buffalo Hollow Phase II Tract flooded in 2007, 2008, 2010, 2013 and 2014. Tr. 678:17-19; 684:12–687:17 (Bateman).

141. The MRRP floodwaters and residual effects impacting Buffalo Hollow Farms' ability to farm the land exceeded 90 days in 2007; 90 days in 2008; 120 days in 2010; and 60 days in each 2013 and 2014. Tr. 684:12–686:21 (Bateman).

142. The Buffalo Hollow losses due to the MRRP flooding as calculated by Dr. Bateman total \$1,069,000 without interest. Tr. 687:21–688:6 (Bateman); **PX3239** (Loss Calculation Chart).

143. The Buffalo Hollow Phase II Tract losses due to the MRRP flooding, as identified by Plaintiff Buffalo Hollow, include crop losses for corn, soybeans, and alfalfa; equipment, reclamation, and flood prevention; and interest on the time value of money lost due to the delay in reimbursement for the takings. Tr. 689:15–696:25 (Bateman).

144. Dr. Bateman utilized crop information provided by Buffalo Hollow Farms to calculate the crop losses. Tr. 687:21–688:24 (Bateman); **PX3237** (Buffalo Hollow Interrogatory Responses).

145. The total crop losses for Buffalo Hollow Farms for all MRRP flood years for corn total \$1,069,000. Tr. 687:21–688:6 (Bateman); **PX3236, PX3304, PX3305** (Charts).

146. The soybean dollar losses derived from the actual trend yield differences multiplied by the acres and price are presented in the soybean table on **PX3236**. Soybean losses due to reduced yields total \$168,839. Tr. 689:15–690:12 (Bateman). The MRRP flooding prevented

plantings of alfalfa and bromage on the Buffalo Hollow Phase II Tract. Those losses total \$2,550 for alfalfa in 2010 and \$2,220 for bromage in 2013. Tr. 692:9-18 (Bateman); **PX3236** (Loss Chart).

147. The total fair market value of the takings losses sustained by Buffalo Hollow Farms equates to \$1,068,789; and with interest at the stocks and bonds rates compounded quarterly, the losses total \$2,340,110 as calculated through June 2020. Tr. 711:6-12 (Bateman); **PX3247-A** (Loss Calculation Chart).

6. Valuation of Permanent Flowage Easement

a. Ron Schneider's Valuation of the Buffalo Hollow Tract

148. Like other farmers, the Schneiders try to stay apprised of farmland values on both sides of the river. Starting in 2006-2007, farm values in the Midwest started appreciating significantly. As of 2010, the value of their 800 acres would have been \$7,900 per acre, our land outside the levee \$3,500 per acre, and the hill ground \$2,500 per acre. Land along the river did not appreciate much after 2010. However, land that was away from the river and not subject to flooding continued to appreciate. Tr. 162:25–163:11 (Schneider).

149. The Schneiders' farmable ground is particularly suitable for farming with large equipment which affords efficiencies. Their ground is irrigated, which adds to its productivity and value. The Schneiders have invested heavily in the building of their private levee without help from any government entity in order to provide flood protection for their farm. The levee also increases the land's value. Tr. 163:25–164:2, 7-14 (Schneider).

150. Based upon the sales and knowledge of their farm in the area, it is Mr. Schneider's opinion, as the authorized designee of the owner of the property, that as of the end of 2014, the 800 acres of farmable ground of their Phase II Tract inside the levee would have a fair market value of \$8,000 per acre. It is his further opinion that the value of their farmable ground lying

outside the levee would have a fair market value of \$3,500 per acre, and the hill ground would be valued at \$2,500 per acre, exclusive of their homes and the substantial investment they have in their shop and equipment housing structures. Tr. 164:15–165:3 (Schneider).

b. Tim Keller's Appraisal of the Buffalo Hollow Farms Tract

151. The appraised fair market value using the sales comparison approach of the Buffalo Hollow Farms Phase II Tract was \$8,000 per acre or \$6,230,000 for the bottomland, \$2,500 per acre or \$1,240,000 for the upland, for a total value of \$7,470,000. **PX3266** (Chart – Sales Comparison Conclusions); Tr. 470:2-14; 483:1-7 (Keller).

152. Mr. Keller placed the range in prices for Missouri River bottomland in Northeast Kansas and Northwest Missouri between \$6,500 per acre to \$8,250 per acre. Tr. 483:14-17 (Keller).

c. Dr. Babcock's Valuation of the Permanent Flowage Easement

153. Dr. Babcock calculated the value of the Permanent Flowage Easement for the Buffalo Hollow Phase II Tract to be \$1,868,928. **PX3360, PX3364** (Charts); Tr. 1071:3-8; 1075:17-19; 1076:15-23 (Babcock).

7. Total Just Compensation Owed

154. Plaintiff Buffalo Hollow's total losses, without interest, pursuant to Dr. Bateman's calculations are \$1,068,769. The loss calculation by Dr. Babcock for the value of the permanent flowage easement equates to \$1,868,928. The total losses, without interest, are \$2,937,697. **PX3364** (Chart); Tr. 1075:17-19; 1076:15-23 (Babcock).

155. Plaintiff Buffalo Hollow's losses, with interest, using the AGG/SPY interest rates compounded quarterly, as calculated by Dr. Bateman, are \$2,340,110. Adding Dr. Babcock's valuation for the permanent flowage easement of \$1,868,928, the total losses for Plaintiff Buffalo Hollow are \$4,209,038. **PX3365** (Chart); Tr. 1077:3-6, 10-17 (Babcock).

156. Plaintiff Buffalo Hollow's losses, using Moody's Corporate Bond Index, compounded quarterly, as calculated by Dr. Bateman, equate to \$1,844,487. Adding the value of the permanent flowage easement, as calculated by Dr. Babcock, \$1,868,928, the total losses for Plaintiff Buffalo Hollow are \$3,713,415. **PX3365-A** (Chart); Tr. 1077:18–1078:3 (Babcock).

D. Credibility of Plaintiffs

157. The Court finds the testimony of the Plaintiffs is credible and reasonable.

158. The Government's Phase II evidence attested to the Plaintiffs' credibility. *See, e.g.*, Tr. 1999:14–2000:3 (Jones); 1307:9-19, 1329:13-18 (Kelman); 1397:22-24 (Remus); 2268:23–2269:8 (Earles).

II. GENERAL FACTS REGARDING PLAINTIFFS' REASONABLE INVESTMENT-BACKED EXPECTATIONS

A. Plaintiffs Purchased and Developed Properties Because of Mainstem System and BSNP

159. Plaintiffs each had reasonable investment-backed expectations that the flooding pattern of the river established after the mainstem system became operational in 1967 and the BSNP would continue. They did not expect that a new flooding pattern would result after the adoption of the MRRP in 2004. *See* ¶¶ 10-12, 14 (Adkins); ¶¶ 63-69 (Ideker); ¶¶ 128-134 (Schneider); *infra*.

160. By investing in projects like the Pick-Sloan project, the Federal Government was trying to incentivize people to build their lives and livelihoods around those sorts of projects. Tr. 2097:20-25 (Jones); **PX16** (2002 NRC Study).

B. The Government's Admissions and Publications Support That Conclusion

1. Government Admissions

161. The United States admits that one of the multiple purposes of constructing the mainstem system and the purpose of constructing levees in the Missouri River Basin was to provide increased flood control compared to conditions before these projects were constructed; the Corps has made public its efforts. Tr. 31:16–32:8; **JX2** (1st RfA, #18, per 7/30/20 Order [**ECF 647**]).

162. The United States admits that during the 20th Century, the prevailing aim of the nation's floodplain management policy was to reduce flood damages, primarily through levees, the upstream retention of water in reservoirs, and other structural measures, and the development, both public and private, of the Missouri River Basin was a reason for those projects. **JX4** (David Ponganis Rule 30(b)(6) Deposition, per 7/30/20 Order [**ECF 647**]); Phase I Tr. 21:9-22:4, 24:25–25:10.

163. The United States admits that the BSNP project set a center line alignment for the river that was predictable and facilitated the development of the Missouri River Basin. **JX5** (Eric Shumate Rule 30(b)(6) Deposition, per 7/30/20 Order [**ECF 647**]); Phase I Tr. 42:7-23.

164. The United States admits expectations arose that people would be protected from flooding along the river. **PX27** (1/27/92 GAO Report to Congress); **PX916** (Ponganis 11/09/15 Rule 30(b)(6) Deposition, 148:16–149:12, 21-22); 3/01/17 Final Pre-Trial Order [**ECF 220**].

165. As time passed following the construction of the mainstem system and the BSNP, the idea that lands next to the river were flood free caused developers to move in; it was the Congressional expectation that the public and investors would invest in the region because there was going to be more stability in the river and, therefore, people could farm and build next to the river. **PX18** at PLTF-00005755 (March 2005 U.S. Dept. of Interior Overview Report); **PX916**

(Ponganis 11/09/15 Rule 30(b)(6) Deposition, 196:23–197:2, 197:8, 11–198:3, 199:13–200:3); 3/01/17 Final Pre-Trial Order [**ECF 220**].

166. The United States admits the reason for construction of the mainstem system and channelization under the BSNP was to facilitate public and private development. **PX916** (Ponganis 11/09/15 Rule 30(b)(6) Deposition, 192:12–193:19); 3/01/17 Final Pre-Trial Order [**ECF 220**].

167. The United States admits channelization “allowed the development and settlement of 95% of the floodplain.” **PX18** (Mar 2005 U.S. Dept. of Interior Overview Report); **PX916** (Ponganis 11/09/15 Rule 30(b)(6) Deposition, 99:1, 101:23–103:6); 3/01/17 Final Pre-Trial Order [**ECF 220**].

168. “The river’s periodic flooding also greatly reduced, and even eliminated, in stretches under the dams’ stabilizing influences.” **PX16** (2003 NRC Study); **PX918** (Jody Farhat 11/10/15 Rule 30(b)(6) Deposition, 74:8-75:19); 3/01/17 Final Pre-Trial Order [**ECF 220**].

2. Publications and Statements by Government Officials

169. The 2002 National Research Council Study (**PX16**) provides in part: “But by the 20th Century ... the Federal Government realized that more substantial government intervention will be necessary to encourage and sustain further settlement and economic development in the vast, harsh portions of the Basin.” (PLTF-00003127) “However, the land between federal levees and the river has been farmed, and expectations consequently arose to protect this land, as well as those lands behind the levees....” (PLTF-00003229); **JX9** (per 7/30/20 Order [**ECF 647**]).

170. The U.S. Department of Interior Overview Report, March 2005 (**PX18**) provides in part: “After the closing of the dams, the vast lands were cleared for agricultural production ... As time passed, the idea that these lands were flood-free caused developers to move in, thus

supplementing the demands for bank stabilization projects.” **PX18** at PLTF-00005755; **PX24** at PLTF-00008263, **PX25**, **PX26** (USACE Statements); **PX3012** (News Article); **DX552** at USACE2331484 (USACE Jan. 1976 Report); **JX9** (all per 7/30/20 Order [**ECF 647**]).

171. “The very goal of the Pick-Sloan Plan was to increase investment in the Missouri River Basin, including for agricultural use.” Phase I Trial Testimony of John Remus (8305:3-25).

C. Mr. Jonathan Jones’ Testimony Is Not Persuasive Evidence to the Contrary

172. The Government’s expert witness on expectations, Mr. Jonathan Jones, after being asked if the Plaintiffs’ expectations were unreasonable, testified as follows: “I think what you’re asking me is when they say they did not expect, as of 2007, to flood in the way they did post-2007, I have no reason to doubt they were telling the truth.” Tr. 1999:14–2000:3 (Jones).

173. Mr. Jones, whose testimony is more extensively addressed *infra* at Section V.B.2.b., purported to perform a “literature review” of historical documents regarding government communications regarding flood risk but has no formal training as a historian or psychologist (or in any social sciences). Tr. 2092:14-2093:6. Moreover, for this “review,” the DOJ acted as the conduit from the Corps staff to Mr. Jones and his staff, and provided documents that had been hand selected by the DOJ and the Corps for Mr. Jones’ review. Tr. 2093:7-24.

174. Mr. Jones implied that the fact that he neglected to include in his testimony any statements from the Government about how residents have come to expect flood protection was not a conscious decision. Tr. 2093:25-2094:21. This testimony was not credible. Mr. Jones was shown a statement by the President of the United States himself (**PX3007**, Eisenhower), about how flooding expectations will adjust to improvements in flood control. While Mr. Jones admitted that the statement related to flooding expectations adjusting to improvements in flood control, and admitted that it would have been relevant to what he set out to research through his “literature review,” he did not include it. Tr. 2094:25-2096:20. Mr. Jones was shown a document from the

National Research Council (**PX16**, 2002 NRC), for which Mr. Jones testified to having great respect, and he acknowledged stood for the proposition that the Federal Government invested in the Pick-Sloan Project to incentivize people to build their lives and livelihoods around those types of projects. Tr. 2096:23-2097:25.

175. Mr. Jones neglected to include the admission that, “The system was designed to protect farmland and developments landward, not riverward of the levee. However, the land between federal levees and the river has been farmed and expectations consequently arose to protect this land as well as those lands behind the levees.” Tr. 2096:21–2099:9; **PX16** (2002 NRC).

176. Mr. Jones acknowledged that, after the BSNP, farm development investment followed. Tr. 2100:1-3; **PX8** (1990 USFWS BiOp).

177. Mr. Jones acknowledged that reasonable investment-backed expectations can arise from enhanced flood control that does not rise to the level of complete protection from all floods. Tr. 2100:16–2101:13.

178. Mr. Jones acknowledged that an “important part” of his conclusions about Plaintiffs’ expectations was his belief that those expectations would have been formed, in part, based upon flooding patterns that predated completion of the dams. Tr. 2067:7–2071:1.

D. Dr. Ari Kelman’s Testimony Is Not Persuasive Evidence to the Contrary

179. Dr. Kelman is a history professor. He is not a hydrologist, economist, engineer, psychologist or psychiatrist, and is not licensed by any governmental entity or agency. Tr. 1296:5-13, 19-22.

180. Dr. Kelman has never lived on the Missouri River, farmed on the river, or owned any property on the river. He did not witness any of the flooding on the river from 2004 through 2014, nor any flooding along the Missouri River prior to 2004 for which he relies for his opinions. Tr. 1303:24–1304:7, 16-19.

181. Dr. Kelman conducted no interviews with anyone in conjunction with forming his opinions. His opinions were based solely on the review of documents concerning historical events. Tr. 1312:24–1313:7. A significant number of the documents he reviewed and relied upon were authored by the Government and written from the perspective of the Government. Tr. 1302:9–1303:1, 10-16; 1314:8-21.

182. Dr. Kelman did not interview the Plaintiffs to ask them about their expectations of flooding for any given period of time, including the flooding from 2004 through 2014. So he does not know if the Plaintiffs were aware of the historical events on which he chose to base his opinions as to their expectations of flooding. Dr. Kelman agrees that in ascertaining the Plaintiffs' understanding or awareness of historical events that would shape their reasonable expectations of flooding, and understands the opinions he offers are contrary to the Plaintiffs' expressed expectations pertaining to flooding along the river. Tr. 1302:9–1303:1, 10-16; 1312:4-17.

183. The period of time Dr. Kelman focused on for his review was the end of the 19th Century through approximately the end of the 20th Century. Dr. Kelman started his research investigation at a timeframe beginning July 1867. He did no research regarding the Plaintiffs' reasonable expectations of flooding as of the 21st Century, specifically as to flooding from 2007 through 2014. Tr. 1323:7–1324:12; 1331:10–1332:3.

184. Dr. Kelman briefly reviewed the MRRP changes, but those changes did not play a major role in him forming his opinions. He did not address the U.S. Fish and Wildlife Biological Opinions of 2000 or 2003, and he did not rely upon the 2004 Record of Decision by the Corps adopting the MRRP. He did not review the Court's opinion in the case of *In Re. Operation of the Missouri System Litigation* authored by Judge Magnuson. Tr. 1315:5-16; 1316:2–1317:13.

185. Newspaper articles played a major role in his opinions. However, Dr. Kelman did not believe the newspaper article (**PX3012**), quoting Brigadier General Lewis A. Pick of the USACE stating that “we can control every drop of that water,” was relevant. Tr. 1317:14-18; 1318:1-4, 11–1320:4; 1322:11-17.

186. Expectations change with policies and behavior of the river, according to Dr. Kelman. Tr. 1325:20-22; 1329:1-5.

187. Dr. Kelman, was aware of Roger Ideker’s testimony that the Ideker Phase II Tract was purchased and developed because of the mainstem system and BSNP, and “I took him at his word. Tr. 1329:13-18 (Kelman).

E. Mr. Eric Shumate’s Testimony Is Not Persuasive Evidence to the Contrary

188. Mr. Shumate described eight USACE documents, but in each and every instance, he could not establish that any Plaintiff had knowledge of the document so as to influence their expectations. Tr. 1539 – 1545; and *see, e.g.*, 1541:14-25.

189. **DX0875-00023** refers to a letter from Congressman Jerry Litton to the Corps in 1974. **DX095-00020** is a news article relating flooding problems at Big Lake in 1974. **DX0975-0004** and **DX0975-0005** are letters pertaining to Holt County, Missouri flooding in 1974. Residents of Holt County, Missouri, were upset in 1974 due to the flooding being experienced at that time. But at that time, no public levee had been built in Holt County leaving the Holt County residents including Big Lake, Missouri, unprotected. Tr. 1545:15–1550:24 (Shumate).

F. Mr. Dan Pridal’s Testimony Is Not Persuasive Evidence to the Contrary

190. The “stage trends” presented by Mr. Pridal were from the 1970s to 2004, and were previously presented to the Court in Phase I. No stage trends were presented after 2004. Thus, the stage trends presented were all prior to the implementation of the MRRP in 2004. There is no evidence before the Court whether any Plaintiffs knew about these stage trends reports presented

by Mr. Pridal. Tr. 1476:14–1477:25; 1478:15–1479:3 (Pridal); *see also* **JX7** (Roger Ideker 1/29/20 Deposition, 86:21–87:16, per 7/30/20 Order [**ECF 647**]).

191. The flooding patterns of the Missouri River changed in the 1970s because of the mainstem system, the BSNP channel, and the levees. These changes resulted in extensive use of the floodplain immediately adjacent to the Missouri River channel downstream of the dams. Tr. 1480:6–9; 1480:23–1481:3 (Pridal).

III. GENERAL FACTS REGARDING PLAINTIFFS’ HISTORIC FLOODING

A. Government Witnesses Provide No Evidence of Historical Flooding That Contradicts Plaintiffs’ Testimony

192. The Plaintiffs’ accounts of flooding prior to 2007 are consistent with the Corps’ accounts of same. Tr. 1531:7–1533:14 (Shumate); 1484:1–15 (Pridal); 2709:21–2710:1 (Zanoni).

193. Based upon a review of the Corps’ records, historic flooding along the Missouri River occurred in 1952, 1973, 1978, and only twice after the BSNP was completed in 1980: 1984 and 1993, but not in 1997 which was the highest runoff in history to that point. Tr. 1531:7–1533:14; **PX3678** (Shumate, Slides 34–35; Phase I Tr.); Eric Shumate, Chief, Hydrologic Engineering Branch, Kansas City District, USACE; (Phase I Tr. 8803:22–8804:2, 13–8805:13).

194. USACE’s Shumate testified that there was no flooding in 1997. Tr. 1531:7–1533:14. Jody Farhat testified in Phase I that although 1997 was the largest runoff year since 1898, the Corps was guided by the 1979 Manual and “There was very little flooding.” **PX918** (Jody Farhat 11/10/15 Rule 30(b)(6) Deposition, 79:17–80:22); 3/01/17 Pre-Trial Order [**ECF 220**].

195. Between 1952 and 1993, there were only four significant floods that occurred on the Missouri River between Sioux City and Rulo, Nebraska. Dan Pridal, Chief, River and Engineering Section, Omaha District, USACE. Tr. 1484:1–15.

196. The USACE Omaha District Office prepares post-flood reports following extreme weather events, and those reports included 1984, 1993 and 1997. (Pridal, Slide 38); Tr. 1453:7-22. However, Plaintiffs' tracts did not flood in 1997. Tr. 57:8-16 (Adkins); 261:8-13 (Ideker); 146:22–147:4 (Schneider).

197. Mr. Remus does not contest the flooding Plaintiffs claim occurred on their properties. Tr. 1397:22-24 (Remus).

198. Mr. Remus has no firsthand or personal knowledge of any flooding that occurred prior to 1987. He has no knowledge of what happened on any given property. Mr. Remus does not know what flooding did or did not occur on any given property in any of the years addressed to the Court during his testimony in Phase II, and he could not tell the Court what flooding did or did not occur on any of the Phase II Tracts. Tr. 1418:23–1419:23 (Remus).

199. Dr. Robert Holmes offered no opinions on historic flooding, causation, duration, or the frequency of flooding. Tr. 1593:3-9. His modeling was also not for the purpose of predicting or determining when flooding occurred. Tr. 1767:21–1768:5. He did no assessment of the Bellwether properties. Tr. 1771:13-15.

200. Mr. Jonathan Jones had no substantive evidence to offer as to when any Plaintiff flooded. Tr. 2006:3-19. He did no analysis to determine flooding (Tr. 2010:22-25), and offered no opinions on flooding. Tr. 2061:15-16. He was aware of no evidence beyond the Plaintiffs' own testimony about when their properties flooded. Tr. 2007:20-24. Mr. Jones is not offering any type of analysis that could build on his opinions regarding days of exceedance to assess actual flooding, and is aware of no expert who could do so nor any formula to translate threshold elevation exceedances into flooding actually experienced. Tr. 2010:18–2011:20.

201. Dr. Earles was strictly a rebuttal witness to rebut Dr. Mays, and did not evaluate flooding. Tr. 2171:4-6; 2273:7-8. He believed the Phase II Plaintiffs testified truthfully and acknowledged that none of his opinions contradict the Plaintiffs' testimony that flooding as a result of the MRRP is more frequent than before on the Phase II Bellwether Tracts. Tr. 2268:23–2269:8; 2273:2-7.

202. Mr. Zanoni agreed that the crop insurance records are consistent with the Plaintiffs' testimony regarding prior flooding. Tr. 2709:21–2710:1.

IV. GENERAL FACTS REGARDING THE CONTINUATION OF THE MRRP AND ITS FLOODING RESULTING IN A PERMANENT FLOWAGE EASEMENT

A. Dr. Larry Mays

203. Dr. Mays' testimony and opinions are credible and reliable.

1. Qualifications

204. Dr. Mays, Plaintiffs' Phase II hydrology and engineering expert, is a registered professional hydrologist, a registered professional engineer in California, Arizona, and Texas, and one of the world's foremost authorities on hydrology. Tr. 813:1-5 (Mays); **PX3443** (Mays' CV).

205. Dr. Mays' extensive academic and professional experience spans 43 years, and he is currently a Professor Emeritus at Arizona State University, School of Sustainable Engineering and the Built Environment. Tr. 813:6-15 (Mays). He is the author, co-author, or editor-in-chief of 24 books. Tr. 814:15-25 (Mays).

206. Dr. Mays has also consulted with many different Government agencies and industries to offer his expertise in flood control systems. Some of these organizations include the U.S. Army Corps of Engineers Waterways Experiment Station, the State of Texas Attorney General's Office, and the American Water Works Association. In recognition of his contributions

to the field of hydrology, he has received numerous high honors and distinctions in the profession. Tr. 815:7-21; 819:2-22 (Mays); **PX3443** (Dr. Mays' CV).

2. Opinions

207. Dr. Mays testified that in short, the MRRP's goal is to "retransform the [R]iver back to its natural state by reconnecting the [R]iver back with its floodplain." Tr. 824:25–825:2.

208. The process of retransforming the River back to its natural state to address the Corps' obligations to the ESA involved a series of System Changes. Tr. 824:25–825:2, 13–826:12.

209. "The Corps' post-2004 Master Manuals ('new Master Manual'), which govern the Corps' System operations, clarified that flood control was no longer considered the Corps' highest System priority, but rather was one of the System's several priorities to be balanced, until flooding concerns become 'imminent' and then flood control would be the highest priority." Opinion on Motion for Reconsideration at 3-4, Mar. 11, 2019 [**ECF 466**] (citations omitted); Tr. 825:13-826:12 (Mays). In Phase I, the Court found that "[t]he increased flooding was a direct, natural, and probable [con]sequence of making T&E releases at times when there was known or expected increased downstream inflows or flooding." Tr. Op. at 77; Tr. 826:13-827:5 (Mays). Dr. Mays affirmed this judgment, asserting that it was "foreseeable that changing the priorities for operation of a multi-purpose reservoir system will change the release decisions." Tr. 835:25-836:3 (Mays).

210. The MRRP included river changes such as "[c]onstructing chutes, chevrons, or backwaters; notching or lowering dikes; notching or lowering revetments;" and channel widening. Tr. 827:6-10 (Mays). Such changes lead to: (1) destabilizing and eroding riverbanks; (2) dredging sediment for emergent sandbar habitats (ESH) and shallow water habitat (SWH); (3) aggregating and degrading of sediment in the mainstem of the Missouri River. Tr. 827:6-18 (Mays). Deposition and erosion of sediment would have further impacts, such as the creation of sediment islands along riverbanks with low velocities, changes in river geometry, increased WSEs, and changes to

seepage. Tr. 827:19-828:4. Dr. Mays detailed that increases in WSEs result in “[i]ncreased seepage issues; increased blockage due to closure of drainage flap gates at the end of the drainage culverts; increased overbank flooding; and increased water on levees.” Furthermore he testified that “during higher flows, channel friction increases, resulting in less flood-carrying capacity, which causes water surface elevations to rise higher and faster.” Tr. 827:22–828:2, 5-8.

211. By 2014, the Corps “had undertaken 1,697 dike notching actions, 354 major modification actions, 63 dike lowering actions, 36 dike extension actions, 39 side-channel chute actions, 20 revetment chute actions, 14 backwater actions, and 3 channel widening actions.” Tr. 828:15-22; Tr. Op. at 26 (citation omitted). According to the Court, this marked a “significant change in the focus of the work the Corps was doing in managing the River – from Flood control to River restoration work.” Tr. 829:12-16 (Mays); Tr. Op. at 23.. Dr. Mays explained how these channel changes would predictably increase flooding and concluded that “moving to managing without defined priorities from a system that previously prioritized flood control above all others and deprioritized fish and wildlife, relative to all others will predictably improve protection of fish and wildlife and lessen flood control.” Tr. 836:3-9 (Mays).

212. Dr. Mays examined the flooding at issue in this case, and concluded that it “makes perfect sense from a hydrological perspective” that higher WSEs are “the predictable result” of the river changes, such as creating notches and chevrons, and reopening chutes. Tr. 835:12-21 (Mays). His conclusions affirm the judgment from the Court in Phase I that “the evidence has established that River Changes by the Corps . . . have had the effect of raising the Missouri River’s water surface elevations (‘WSE’) in periods of high flows.” Tr. Op. at 27; Tr. 833:1-7 (Mays). Relying on the opinions of Plaintiffs’ Phase I experts, Dr. Hromadka and Dr. Christensen, the Court ruled that “[w]hen the Corps took combined actions to make the River shallower and slower, rising

WSEs were a natural, direct, and probable consequence.” Tr. Op. at 114-15; Tr. 833:8-834:4 (Mays). Dr. Mays testified that the effort to construct SWH is “consistent with a goal to physically ‘reconnect’ a river to its floodplain.” Tr. 835:22-24.

213. Dr. Mays opined that the same MRRP River changes that were found to have caused the flooding in Phase I of this trial per the testimony of Dr. Christensen and Dr. Hromadka, are still in place, and without a change in prioritization the flooding will continue. Tr. 822:13-14; 834:20–836:17 (Mays). This opinion was shared by Plaintiffs’ Phase I experts. Dr. Christensen opined that “[u]nless the Corps reverts to its prior policies and procedures for the operation and management of the [S]ystem and the [R]iver, the increased levels of flooding will continue.” Tr. Op. at 91-92, 62 (alteration in original) (citations omitted); Tr. 834:14-19. Dr. Hromadka “opined that the evidence and analysis results show that the Corps’ System and River Changes have impacted and changed the Missouri River, causing an enhanced flood risk, as well as recurrent flooding in the Missouri River Basin that will continue into the future.” Tr. Op. at 98 (alterations in original) (citation omitted); Tr. 835:3-9.

214. Dr. Mays opines that “one would logically expect that, unless and until the River Changes are deconstructed and the sequential properties reinstituted in a new Master Manual, any altered flooding pattern caused by the MRRP Changes would continue.” Tr. 836:10-17 (Mays). There is no indication of that changing, as “dikes are still notched, revetments are still lowered, and the river changes to construct SWH are still in place. The River Changes that have added roughness and slowed the river are still there. Hydrologically, these effects are not going to dissipate through natural processes. The River is not going to disconnect itself from the floodplain.” Tr. 836:22-837:6. There are also no plans to reverse the River changes, as the “Master Manual still deprioritizes flood control relative to its old order of priorities” and that there is still

a “continuing incentive for the Corps to prioritize Biological Opinion, BiOp, compliance over flood control.” Tr. 836:20-21; 822:15-20 (Mays). Dr. Mays concludes that considering these factors, there “would be no scientific basis to anticipate that the new flooding pattern would have abated.” Tr. 837:13-17 (Mays).

215. Dr. Mays examined the Bellwether properties, their relative locations, and their flooding histories with respect to the MRRP. Tr. 838:19-21; 821:2-8 (Mays). Property 33, Ideker Farms, Inc., is located roughly 50 miles away from the nearest upstream USGS discharge gage. Tr. 841:10-16 (Mays). Dr. Mays’ research indicated that the Ideker property was near “multiple BSNP structure modifications, five MRRP sites, and multiple dike notches.” Tr. 842:16-20; **PX1560** (Map). Notable sites included the Deroin Bend Chute, Rush Bottom Chute, Thurnau Mitigation Project, a project that will “result in breaching an existing levee ... during high river stages,” and Corning Conservation Area. Tr. 842:16-843:21 (Mays). Dr. Mays lists 1952, 1962, and 1967 as pre-system flooding years; 1984, 1993 as post-system, pre-MRRP flooding years; and 2007, 2008, 2010, 2011, 2013, 2014, 2015, 2016, 2017, and 2018 as post MRRP-flooding years. Tr. 842:1-10 (Mays).

216. Property 41, Buffalo Hollow Farms, Inc., is roughly 20 miles from the closest upstream USGS discharge gage. Tr. 843:24-844:1 (Mays). Buffalo Hollow is located directly across from the MRRP project, Wolf Creek Bend, a large revetment chute project that has led to approximately fifty acres of river widening at that site. Additionally, in 2006, 11 bank notch projects were also created in the Wolf Creek Bend area. Tr. 845:9-23 (Mays); **PX1707** (Buffalo Hollow Map). Dr. Mays lists 1952, 1967 as pre-system flooding years; 1973, 1984, and 1993 as post-system, pre-MRRP flooding years; 2007, 2008, 2010, 2011, 2013, 2014, 2015, 2016, 2017, and 2018. Tr. 844:10-845:5 (Mays).

217. Property 17, Adkins Property, is located around five miles downstream from the closest USGS discharge gage. Tr. 846:4-6 (Mays). There had been extensive BSNP structure modifications both upstream and immediately downstream, as well as notched and lowered dikes and revetments in the area. Tr. 847:2-11 (Mays); **PX1270** (Map). Dr. Mays lists 1984, 1993, and 1995 as pre-MRRP Flooding years; and 2007, 2008, 2010, 2011, 2013, 2014, 2016, 2017, and 2018 for Post-MRRP flooding years. Tr. 846:16-25 (Mays).

218. The Court discussed the continued flooding, noting that although 2014 was selected as “the cut-off year for purposed of proving flooding by the Corps’ System and River Changes ... some plaintiffs have continued to experience flooding. The plaintiffs claim that there is now a pattern of increased flooding caused by the Corps’ System and River changes.” Tr. Op. at 29; Tr. 847:12-21 (Mays). Plaintiffs’ Phase I claim is corroborated by Dr. Mays’ finding that “with the exception of Adkins in 2015, there was significant flooding on each Bellwether Property in every year subsequent to 2014.” Tr. 848:14–849:13 (Mays).

219. Dr. Mays’ investigation of post-2014 flooding years comprised of three quantitative and one qualitative study. Tr. 849:17-23; 891:16-892:1 (Mays). First, Dr. Mays analyzed the recorded annual peak discharges and corresponding gage heights available for the USGS Gaging stations nearest each of the Phase II Tracts which allowed Dr. Mays to “illustrate the patterns of flooding for each of the Bellwether Properties before and after the MRRP, and demonstrates that the increased flooding of the properties is a continuance of the newer post-MRRP flooding pattern.” Tr. 850:12-22 (Mays); **PX3415, PX3413, PX3419** (Charts).

220. Based on this investigation, Dr. Mays opined that starting in 2007, the Ideker, Buffalo Hollow, and Adkins Properties started flooding during years with gaged peak flows at lower levels than would have flooded the property pre-MRRP. Tr. 853:17-21; 855:19-856:12;

859:6-11; 860:14-18; 862:16-21; 864:25-865:4 (Mays). He explained that this allowed him to make the presumptive determination that flooding since 2014 had also been caused by the MRRP. Tr. 853:2-6, 859:12-14, 862:22-24. (Mays). Dr. Mays testified that his analysis confirms the intuitive expectation that one would see continued regular flooding because the same river and system changes that caused the flooding from 2007 to 2014 remain in place.” Tr. 864:13-17.

221. For his second study, Dr. Mays conducted a frequency analysis to determine return periods. A frequency analysis, broadly understood “makes use of probabilistic analysis of hydrologic data (for example, rainfall volumes or stream flows, and others) in order to relate the magnitudes of events to their frequency of occurrence.” Dr. Mays conducted this analysis using annual peak discharges provided from the USGS. Dr. Mays testified that he examined the smallest peak discharge that resulted in flooding, and using three data sets, found the approximate return period – or how often flooding could be expected. Tr. 866:3-22; 868:19-25; 869:17-21; 874:20-25 (Mays).

222. Based on the 1970-2018 data set, the Ideker, Buffalo Hollow, and Adkins properties had the approximate return period of 1.5, 2.0, and 1.5 years. Tr. 871:11-12; 873:6-11; 874:20-25 (Mays); **PX3415, PX3413, PX3419** (Charts). Dr. Mays opined that this study affirms that whereas “Bellwether Properties used to flood relatively infrequently; now they are flooding in years where the peak flow return periods are much more frequent ... This demonstrates that the MRRP-related flooding pattern that started in 2007 causes flooding to occur significantly more frequently on the Bellwether properties compared to pre-MRRP time period.” Dr. Mays explains that when he conducted the analysis using the Corps’ 2003/2004 study, none of his opinions were materially changed. Tr. 876:23–877:7; 884:9-17 (Mays); **PX3553, PX3554, PX3555** (Charts).

223. Dr. Mays' final study to examine the post-2007 flooding pattern was a hydrologic risk analysis. Dr. Mays testified that he was examining the probability that a certain return period of a certain discharge will occur in a certain amount of years. Tr. 884:20–885:7; 886:2-5 (Mays). Dr. Mays opines that probabilities of flooding reflect that, in the new flooding pattern, the “Bellwether properties cannot expect to go for even two years without flooding, a marked departure from pre-MRRP flooding pattern.” Tr. 889:11-14; 890:6-9, 20-23; 891:6-9 (Mays).

224. In addition to his quantitative analysis, Dr. Mays completed a qualitative risk assessment using the concept of a generic risk matrix. Bellwether properties moved from a tolerable (defined by Dr. Hromadka “as when flooding, seepage, and blocked drainage exceeds an acceptable level”) level of “risk that existed prior to the MRRP to an intolerable level of risk as a result of the MRRP.” Tr. 892:3-13; 894:2-22; 895:5-8 (Mays); **PX3437** (Matrix).

225. When combined with the Court's Phase I findings, Dr. Mays' studies prove that the “extensive River and System Changes related to the MRRP caused the flooding of Bellwether Properties Ideker Farms and Buffalo Hollow Farms in 2007, 2008, 2010, 2013, 2014, 2015, 2016, 2017, and 2018.” Similarly, these “extensive river and system changes related to the MRRP caused the flooding of Bellwether Plaintiff Adkins in 2007, 2008, 2010, 2016, 2017, and 2018.” Dr. Mays concludes that this “changed flooding pattern that continues at the Bellwether properties will continue unless the River is disconnected from the floodplain and flood control is reprioritized.” If these properties continue to flood frequently, as expected, Dr. Mays testifies that this equates to “an intolerable level of risk and a meaningful reduction in the value of the Bellwether properties.” Tr. 898:20–899:19 (Mays).

3. **Dr. Andrew Earles' Opinions Do Not Successfully Rebut Dr. Mays' Opinions**

226. Unlike Dr. Mays, Dr. Earles is not a professional hydrologist. Tr. 2267:14-2268:5.

227. Dr. Earles never met the Bellwether Plaintiffs or visited their properties. Tr. 2268:12-25.

228. Dr. Earles did not do his own flood flow frequency study for this litigation, and he agreed that none of his opinions should be taken as contrary to the conclusion that flood events are more common now at the Bellwether properties as a result of MRRP-related changes. Tr. 2270:12-2272:5; 2272:16-2273:8.

229. Dr. Earles also reviewed Dr. Bradley's analysis and conclusions regarding increased flood flow frequencies attributable to the MRRP, and offered no opinions on Dr. Bradley's analysis. Tr. 2273:23-2274:11

230. Dr. Earles believed that the recurrence intervals computed by the Corps in its 2003 flow frequency study, which did not include data for water years after 1997, were still accurate today. Tr. 2274:19-2275:14.

231. Dr. Earles prepared charts comparing the recurrence intervals computed by the Corps in its 2003 flow frequency study and Dr. Mays' calculated recurrence intervals, which demonstrated substantial agreement. Tr. 2275:15-2278:15; **PX3553, PX3554, PX3555** (charts). Specifically, Dr. Earles' analysis revealed that Dr. Mays' calculated return periods did not agree with the Corps' own calculated return periods only 27% of the time. Tr. 2283:12-16. At trial, Dr. Earles only provided the Court with a portion of one of those charts that created the false impression that there was very little agreement between the Corps' calculated recurrence intervals and Dr. Mays' calculated return intervals. Dr. Mays denied this was intentional. Tr. 2278:16-2282:3.

232. For those gaged flows where Dr. Mays' calculated return intervals differed from the Corps' 2003 study, one likely explanation for the differences was that the two studies analyzed

significantly different sets of data, the Corps was analyzing data from 1897-1997, while Dr. Mays was analyzing data from 1970 to 2019. Dr. Earles had no knowledge of whether properly analyzing these differing sets of data would lead to calculations of more common or less common recurrence intervals. Tr. 2290:22–2295:24; 2296:19-23.

233. Dr. Earles testified that one would expect to see occasional years with high peaks that do not result in substantial flooding because the peaks might recede quickly and occasional years with moderate peaks that are sustained for long periods of time and, therefore, result in more substantial flooding than would otherwise normally be associated with such moderate peak flows. Thus, Bellwether testimony about the river staying up longer than it did pre-MRRP could explain why Dr. Mays' analysis showed certain years with lower peak flows causing flooding when they did not cause flooding pre-MRRP. Tr. 2298:22–2302:8.

234. While Dr. Earles criticized Dr. Mays for not aligning his analysis with Bellwether Plaintiff testimony, the only supposed example he offered – his inconsistency in addressing the Adkins flooding from 1995 or 1996 – did not support his point. The evidence established that Dr. Mays had been transparent throughout his expert report and his trial testimony, and his analysis tracked accurately Mr. Adkins' testimony regarding his flooding. Tr. 2304:14-2312:19.

235. Dr. Earles criticized Dr. Mays for failing to follow all aspects of Bulletin 17C in developing flood flow frequency curves and calculating his recurrence intervals. However, Bulletin 17C itself expressly states there is no national guidance on how to develop flood flow frequency curves for regulated data (which Dr. Earles admits Dr. Mays was addressing). **PX3749** (USGS Bulletin 17C); Tr. 2322:12-2324:21. Moreover, when the Corps set out to see if inclusion of the water years of the Missouri River from 1998-2011 would require modification of recurrence

intervals, its analysis did not follow Bulletin 17C, insofar as it did not utilize a regulated/unregulated flow relationship and did not consider depletion data. Tr. 2315:18-2319:9.

236. While Dr. Earles opined that Dr. Mays' opinions ought to be disregarded because he relied on flood flow frequency curves that did not follow Bulletin 17 procedures, his own co-worker, Mr. Jones, in expert testimony to the Court the previous day relating to flood flow frequency, relied on an analysis done by the Corps itself that *also* disregarded Bulletin 17 in many of the same ways for which Dr. Earles criticizes Dr. Mays. Tr. 2319:10-2320:23 (Earles); 3016:15-3018:7 (Mays). Dr. Mays noted that the USACE itself does not always follow the various steps prescribed by Dr. Earles in its analyses of flood flow frequencies. Tr. 3016:15-3018:7 (Mays).

237. Dr. Earles admitted that it would be best practice to include the most recent 20 years if calculating recurrence intervals and admitted that a full 40% of Dr. Mays' data post-dated 1998, the last water year included in the Corps' 2003 study. Tr. 2321:23-2322:11.

238. Bulletin 17C itself expressly states that it should not be applied to regulated rivers and that there is no national guidance on how to estimate flood flow frequency on regulated rivers. **PX3749** (USGS Bulletin 17C); Tr. 2322:12-2325:17 (Earles). Dr. Mays opined that Bulletin 17 need not be used to calculate reliable recurrence intervals and that Bulletins 17B and 17C are merely guidelines, with express limitations on their use such as with regulated rivers and regulated data. Tr. 3015:20-3016:15.

239. Dr. Mays opined that it was unnecessary to develop and rely upon a regulated/unregulated relationship in computing flood flow frequencies and recurrence intervals, and that this process would only add uncertainty to his analysis that included exclusively regulated data, also noting that the USACE itself does not always rely on such relationships when it is analyzing exclusively regulated data. Tr. 3018:9-3019:12.

240. Dr. Mays opined why Dr. Earles' additional criticisms regarding his supposed small sample sizes and failure to account for the impact of wet and dry cycles was misplaced. Tr. 3019:14-3020:9. In Dr. Mays' professional opinion, the added reliability that his analysis enjoyed from being limited to only post-regulation water years more than made up for the exclusion of the additional years of pre-system recorded flow data. Tr. 3020:10-14.

241. Dr. Mays opined that all of Dr. Earles' criticisms are insignificant and do not affect his confidence in his conclusions. Dr. Mays noted that not only did Dr. Earles fail to offer any contrary flow frequency analysis of his own, but Dr. Earles did not offer any analysis to attempt to quantify how any of Dr. Mays' calculations or thresholds would have been affected had he incorporated into his analysis any of the changes Dr. Earles opined he should have made. Dr. Mays characterized that absence as "telling." Dr. Mays ultimately concluded that, even if any of Dr. Earles' proposed extra steps were added to his methodology, it is impossible that the effect would have been sufficiently material to alter his conclusions about a changed flooding pattern along the Missouri River due to the MRRP and about a significantly enhanced hydrologic risk for the Bellwether Plaintiffs. Tr. 3020:16-3021:9.

B. Government Admissions

242. The United States admits that the MRRP is ongoing, has continued and remained a viable and active program at all times since 2014. Tr. 33:12-15; **JX1** (1st RfA, #25, per 7/30/20 Order [**ECF 647**]); Tr. 33:12-19 (Govt. admissions); 1400:11-13; 1402:16-17 (Remus).

243. The United States admits that the BSNP mitigation project is an essential part of the MRRP. Tr. 35:8-11; **JX1** (3rd RfA, #71, per 7/30/20 Order [**ECF 647**]).

244. The United States admits that the BSNP mitigation project has continued to remain a viable and active part of the MRRP since 2014. Tr. 33:16-19; **JX1** (1st RfA, #26, per 7/30/20 Order [**ECF 647**]).

245. The Government action causing the taking of Plaintiffs' Phase II Tracts is ongoing. Tr. 33:1-19; Tr. Op. at 255-256. One would reasonably expect and the evidence, including the admissions by the Government, clearly confirms that if the MRRP changes have continued, the new MRRP pattern of flooding would continue "connecting the river to its floodplain." See ¶¶ 15-21 (Adkins); ¶¶ 70-81 (Ideker); ¶¶ 135-143 (Schneider), *infra*.

246. The United States admits that since 2014, the Government has not removed or closed any of the chutes constructed and/or opened in conjunction with the BSNP mitigation project and/or the MRRP; however, natural river processes may have modified some of them and some have been modified to function differently. Tr. 34:7-16; **JX2** (3rd RfA, # 32, per 7/30/20 Order [**ECF 647**]).

247. The United States admits that the 2004 Master Manual generally requires that there must be more water in the upstream reservoirs than did the 1979 Manual. Tr. 34:17-25; **JX1** (3rd RfA, #34, per 7/30/20 Order [**ECF 647**]).

248. The United States admits that in a December 20, 2011 Associated Press release (**PX155** at PLTF-00003089), USACE General McMahon stated, "Flood control requires reservoirs to be as empty as possible." Tr. 35:1-7; **JX1** (3rd RfA, #35, per 7/30/20 Order [**ECF 647**]).

249. The flowage easement taken from the Plaintiffs is permanent because the ongoing Government actions have led to a changed flooding pattern that is persisting. Tr. 33:12-19; Tr. Op. at 255-256.

C. Mr. John Remus, USACE, Omaha

250. According to Mr. Remus, the MRRP is ongoing, there are no plans to cease or stop the MRRP, the construction of habitat for endangered species is ongoing, the Corps has not deconstructed SWH and there are no plans to remove or deconstruct the thousands of SWH actions along the river. Tr. 1402:16-17; 1410:20–1411:13.

251. The modifications to the river control structures to facilitate SWH construction, as found by the Court in the Phase I Trial Opinion at page 26, remain. There are no plans to remove the SWH construction done under the MRRP. Tr. 1408:4–1410:1.

252. **PX3117** is the Missouri River Recovery Management Plan and Environmental Impact Statement for Record of Decision (Management Plan) from November 2018, which provides the basis for the 2018 changes to the Master Manual, along with the accompanying Environmental Impact Statement as of November 2018. Tr. 1398:1–1399:3.

253. The U.S. Fish and Wildlife Service told the Corps if it took these actions as outlined in the MRRP Management Plan (**PX3117**) and the EIS, that will result in a “no jeopardy” determination to the endangered species, and that the Corps must comply with the environmental laws including the ESA and MRRP to accomplish “no jeopardy.” Tr. 1402:4-15.

254. There are still endangered species, including the least tern, piping plover and pallid sturgeon. Tr. 1402:20–1403:2.

255. Since the 2018 Management Plan, the new way to construct shallow water habitat (“SWH”) is by interception-rearing complexes (IRCs). Tr. 1403:3-13. The Corps’ plan is to construct 12 IRC sites paired with 12 sites that are not going to be altered to see if the IRCs function as the Corps anticipates. Tr. 1407:13-24.

256. When the Master Manual was updated in 2018, the provisions for spring pulses and reservoir unbalancing were the two operational changes removed. Tr. 1403:19-23. The Plaintiffs have never claimed the spring pulses caused flooding, and Dr. Christensen testified in Phase I that he could find no evidence that the spring pulses caused flooding on Plaintiffs’ properties. Tr. 1404:18–1406:25. The unbalancing of the reservoirs was never done. There were only three

spring pulses that occurred: one in 2006, one in 2008, and one in 2009. They were never bimodal, but single pulses. Tr. 1404:3-17.

257. **PX3116** is a July 2018 Corps document titled the Missouri River Recovery Program Management Plan and Environmental Impact Statement, HEC-RAS Modeling Alternatives Report, Final. The document states, “The flow change alternatives have the potential to significantly impact interior drainage.” The Corps knows that any changes to the flow of the river can have potential significant impact to interior drainage. Tr. 1411:13–1412:21.

258. The Federal Government continues to deny that the MRRP has caused flooding on the Missouri River, and the Government continues to deny that the flooding up through 2018 has been caused by the MRRP. Mr. Remus is not aware of the Federal Government taking the position that the flooding patterns of the Missouri River have changed since the adoption of the MRRP in 2004. Tr. 1420:16–1421:20 (Remus); 82:12-17 (Adkins); 229:22–230:2 (Ideker); 151:20–152:5 (Schneider).

D. USACE’s Mr. Dan Pridal, Omaha, and Mr. Eric Shumate, KC

259. There are no current plans to remove or deconstruct the thousands of constructed MRRP SWH actions along the river. The MRRP is continuing, and construction of SWH for the endangered species is still occurring and going to occur. Tr. 1494:14–1495:14. Mr. Eric Shumate of the USACE Kansas City District concurred that the MRRP is ongoing. Tr. 1538:9-11.

260. The modifications to the river control structures, as outlined in the 2014 Shallow Water Habitat Accounting Report for the Omaha District (**PX277**) and as addressed in the Court’s Phase I Trial Opinion, still exist. The 2014 Shallow Water Habitat Accounting Report has not been updated since the trial in 2017, and continues to be the most recent version. Tr. 1473:11–1476:5-10 (Pridal).

261. “Floodplain connectivity, as addressed in the 2003 BiOp, means connecting the river to the floodplain.” Tr. 1492:23–1493:7 (Pridal).

262. The Corps has shifted its efforts to obtain SWH required under the 2003 BiOp from the construction of chutes to IRCs. Tr. 1488:13-21; 1489:20–1490:1. For every acre of IRC habitat, 7.7 acres of land acquisition is required, and this significant acquisition would be required to meet the BiOp’s 30 acres per mile goal for SWH, plus floodplain connectivity. Tr. 1492:11-22. The IRC target habitat is 260 acres a year for 13 years, and the Corps has to comply with that requirement in order to receive a no-jeopardy opinion from the US Fish and Wildlife Service. Tr. 1493:22–1494:13 (Pridal).

V. ALL OF PLAINTIFFS’ FLOODING WAS CAUSED BY THE MRRP AND THE GOVERNMENT’S EFFORTS TO “INCREMENTALIZE” THE FLOODING ARE INEFFECTIVE, UNRELIABLE AND FAIL TO DEMONSTRATE THAT ANY OF PLAINTIFFS’ LOSSES ARE NOT ATTRIBUTABLE TO THE MRRP

A. Plaintiffs have provided competent evidence that the flooding they experienced in years where the Court already found causation, foreseeability and severity would not have happened but for the MRRP.

1. Plaintiffs’ Eyewitness Testimony

a. Phase II Bellwethers

263. The new pattern of flooding caused by the MRRP beginning in 2007 has continued. Tr. 60:12-20; 86:25; 87:1-4 (Adkins); 259:13-17; 263:11-16 (Ideker); 168:19–169:12 (Schneider).

264. The river has changed since 2007. The river is unpredictable. The river experiences high-water events much more frequently, runs higher, rises faster, reaching higher peaks, and stays on the land longer in high-water events. Tr. 58:11-25 (Adkins); 262:7-264:1 (Ideker); 168:19–169:4 (Schneider).

265. A major difference with the MRRP flooding is that the river rises very fast but then recedes very slowly, which is just the opposite of what the river did in high-water events prior to

the MRRP. The floodwaters remain on the land longer and the inundation is more severe, causing more damage. The effect on crops is significant. Tr. 58:11-25 (Adkins); 262:7-17 (Ideker); 167:16–168:3 (Schneider).

266. Unlike before 2007, heavy rains emptying into the river north of the Ideker and Buffalo Hollow Phase II Tracts, such as the Platte River in Nebraska and the Nemaha River in Iowa and Missouri, lead to flooding. Any influx of significant water from whatever the source now leads to flooding. Tr. 262:24–263:7 (Ideker); 169:5-12 (Schneider).

267. Based on the flooding from 2007 through 2018, there is a pattern of increased and atypical or deviated flooding caused by the MRRP; the Court permitted testimony on the post-2014 flooding for this purpose. The flooding caused by the MRRP contrasts markedly with the historical flooding patterns. In no previously recorded time span, and certainly not since the mainstem system became operational in 1967 up until 2007, did comparable flooding patterns occur. *See* ¶¶ 16, 19, 79, 137, 268-271, *supra*.

268. The United States admits that it lacks knowledge of the types of flooding that occurred on any of the three Representative Properties in 2015, 2016, 2017 and 2018. **JX10** (1st RfA, Nos. 27, 28, 29 and 30, per 7/30/20 Order [**ECF 647-6**]).

b. Phase I Bellwethers

269. The Phase I Bellwether Plaintiffs testified to this change or deviation of the flooding pattern beginning in 2007, based upon their firsthand observations. *See, e.g.,* **PX3721** (Phase I Tr. Excerpts); Tr. 2101:14–2124:2 (Phase I Bellwethers Foral, Cunningham, Rouse, Woltemath, Luce, Frakes, Jackson, Salter, Roth, Sieck, Ettleman, Larson, Garst, Griffin, Ideker).

2. Plaintiffs' Expert Testimony

a. Dr. Hromadka

270. In Phase I, Dr. Hromadka opined that “the flooding in question would not have occurred” but for the changes related to the MRRP. Tr. 5053:23-5054:15; 5707:1-10. He specified that he was not only talking about only an “incremental” increase in flooding, but that “all or almost all of the flooding was the result of the Corps’ changes.” Tr. 5233:10-18. It was clear from the context of Plaintiffs’ claims and expert testimony in Phase I that the “almost all” caveat related to 2011 claims, where Plaintiffs’ experts clarified they could not testify that all flooding resulted from the MRRP, but some or most did.

271. Dr. Hromadka also explained that the WSE modeling in this case was not technically necessary to establish causation, as it merely served as corroboration of other types of analyses he had conducted in the case combined with what his engineering expertise allowed him to conclude about causation from the other independent facts in the case. Tr. 8451:10-16.

b. Dr. Christensen

272. In Phase I, Dr. Christensen also rejected the notion that the MRRP only caused “incremental” additional flooding. Instead, he explicitly opined that, “most if not all” of the flooding was caused by the MRRP and clarified that the caveat that prevented him from testifying that “all” of the flooding was caused by the MRRP related to 2011. Specifically, Dr. Christensen identified that 2011 exceeded the system’s capacity and thus some flooding would not have been avoided. Tr. 4489:8-4490:10. This was the only caveat Dr. Christensen offered to his conclusion that but for the Corps’ System and River changes post-2004, “the flooding in question would not have occurred.” Phase I Tr. 4837:10-13. It is not an accurate summary of Dr. Christensen’s Phase I opinions, that he merely opined that the MRRP contributed to incrementally more severe flooding than would have otherwise occurred, as it exaggerates a caveat he offered with respect only to 2011 flooding, which claims are no longer at issue in the Phase II trial.

273. Dr. Christensen also repeatedly offered the caveat that his modeling of WSEs, while sufficiently reliable to make “but-for” determinations of causation, would not capture the magnitude of WSE increases attributable to the MRRP. *See infra* at Section V.B.1.a.

c. **Dr. Mays**

274. Dr. Mays opined that, based on his independent study, “Bellwether Properties used to flood relatively infrequently; now they are flooding in years where the peak flow return periods are much more frequent.” Tr. 876:23-877:1. He asserted that this “demonstrates that the MRRP-related flooding pattern that started in 2007 causes flooding to occur significantly more frequently on the Bellwether properties compared to pre-MRRP time period.” Tr. 877:2-7.

275. When combined with the Court’s Phase I findings, Dr. Mays’ studies prove that the “extensive River and System Changes related to the MRRP caused the flooding of Bellwether Properties Ideker Farms and Buffalo Hollow Farms in 2007, 2008, 2010, 2013, 2014, 2015, 2016, 2017, and 2018.” Tr. 898:20-899:1. Similarly, these “extensive river and system changes related to the MRRP caused the flooding of Bellwether Plaintiff Adkins in 2007, 2008, 2010, 2016, 2017, and 2018.” Tr. 899:2-5.

B. Defendant failed in its effort to further incrementalize this flooding and establish that some of the flooding at issue in this second phase trial would have occurred regardless of the MRRP.

1. **Both Plaintiffs’ experts and Defendants’ own experts have testified that the modeled water surface elevations upon which the Government entirely relies cannot be relied upon to incrementalize the flooding due to MRRP changes in the way the Government now advocates.**

a. **Dr. Christensen**

276. In Phase I, Dr. Christensen testified how MRRP changes led to higher water surface elevations at the Bellwether properties. He was able to demonstrate this effect using a simple table of water surface elevations measured at discharge gages and then interpolating between the USGS

gages across vast river reaches. Dr. Christensen recognized that this would provide only a rough estimate – a rough measure relative to more detailed and sophisticated modeling like HEC-RAS, but it also had its advantages: It was transparent; it used accepted, actual gage data; and it was inherently conservative. Dr. Christensen went to great lengths to explain why his model was conservative. His expert report contained numerous detailed explanations why his modeled water surface elevations at the Bellwether properties would not capture the magnitude of increases attributable to local MRRP river changes. Tr. 2961:2-25 (Mays citing Christensen).

277. Dr. Christensen was correct in asserting that water surface elevation increases miles downstream cannot be fully detected at the gages. Dr. Christensen opined that “in between the flow measurement gages, significantly water level increases during floods can go undetected just 10 miles upstream and only partially detected just 5 miles upstream. At best, the gages show only a reduced and attenuated water level increase from downstream channel modifications such as chutes, chevrons, wing dike notches, and the like ... these significant undulations of the Corps' computed water surface profile between the gages are greater for the higher flood flows and show that water level increases of between 1.0 and 6.25 feet can go undetected by the flow measurement at the gages.” Tr. 2962:2-18. Dr. Christensen opined that, because the magnitude of actual, real-world water surface elevation increases would predictably be higher, and possibly higher by many feet, during flood flows at Bellwether properties than the approximate minimum estimates presented in Dr. Christensen's modeling results, the eyewitness observations of the Bellwether Plaintiffs and other witnesses would also need to be considered and factored in. Tr. 2983:1-10; 2982:14-25; **PX3707** (July 2016 Christensen Report, p. 97). Dr. Christensen specifically testified in the Phase I trial as to why his modeled WSEs would be conservative and underestimate real world WSEs. Tr. 2983:12-2985:22, which not only included the inherent underestimation inherent

in using discharge gage data that only include attenuated artifacts of localized WSE increases, but also the use of outdated water surface profiles that would predictably underestimate WSEs in the post-MRRP river. Tr. 2983:12–2983:22; Phase I Tr. 4769:4–10.

b. **Mr. Woodbury**

278. Mr. Woodbury also specifically opined in his expert report that it would be a “clear misapplication” of Dr. Christensen’s modeled WSEs to attempt to assess the incremental impacts of the MRRP. **PX3702** (Sept. 2016 Woodbury Rebuttal Report Excerpt).

279. The Government’s own Phase 1 expert hydrologist, Mr. Woodbury, studied the relevant reaches of the Missouri River and admitted that MRRP projects are generally removed from the discharge gages and the gages are less prone to the influences of MRRP projects by being removed from them. **PX3705** (June 2017 Woodbury Phase I Tr., p. 11681).

c. **Dr. Bradley**

280. Dr. Bradley’s opinion was consistent with Plaintiffs’ experts’ opinion that WSE increases “propagate out” within several miles, and it does not take tens of miles for them to become undetectable. **PX3762** (Dr. Bradley 6/19/20 Deposition, pp. 98–99); Tr. 2763:18–2764:8.

d. **Dr. Mays**

281. Dr. Mays opined regarding the specific process by which increases in WSEs attributable to localized MRRP river changes near the Bellwether properties will propagate out by the time they reach the nearest upstream discharge gages. Tr. 2964:22–2968:10; **PX3470, PX3472, PX3473, PX3474** (Dr. Mays’ HEC-RAS Analyses of Attenuation).

282. Dr. Mays conducted analyses using HEC-RAS to quantify the attenuation of increases in WSEs of 2-, 4-, and 6-feet as those increases propagate upstream. Tr. 2968:11–2978:3; **PX3475, PX3476, PX3481, PX3482** (Dr. Mays’ Graphs). Those analyses proved that the magnitude of those increases was typically reduced by about half by the time they reached 5 miles

upstream and were small fractions of their initial magnitudes by 10 miles and virtually undetectable by the time they reached 20 miles upstream. Dr. Mays opined that any increases at Buffalo Hollow or Ideker would be virtually undetectable at discharge gages, and any increases at Adkins would only be detectable by the gages at about half of their actual levels. *Id.*; Tr. 2978:16-2979:22. He offered an analogy to attenuation of sound volume. Tr. 2979:25-2981:14.

283. Dr. Mays explained how both sides' experts agreed that the gages themselves were less prone to the influences of shallow water habitat and other MRRP projects by being physically removed from them. Tr. 2981:16-2982:11; **PX3707** (July 2016 Christensen Report, pp. 98-99); **PX3705** (June 2017 Woodbury Phase I Tr., p. 11681).

284. Dr. Mays opined that a unifying flaw in the Government experts' analysis is that they all wrongly assumed that the interpolated WSEs would capture the magnitude of WSE increases attributable to the MRRP. Mr. Jones' and Dr. Evans' use of Dr. Holmes' WSEs or a mix of Dr. Holmes' and Dr. Christensen's WSEs, respectively, results in the Government "drastically underestimating the full effects of the MRRP projects." Dr. Mays opined that accurately parsing the incremental causes of crop loss is scientifically impossible given data limitations. Tr. 2986:7-2987:9. The Government experts' modeling will, therefore, inherently underestimate the actual flooding impact of the MRRP changes on Bellwether properties and inherently minimize the actual damages suffered by the Bellwether Plaintiffs. Tr. 2988:14-18; 2989:4-6.

285. Dr. Mays opined that the imprecision of gage interpolation modeling make it scientifically impossible to parse the Bellwether Plaintiffs' crop losses into those solely caused by the MRRP and those where other natural factors, like weather, contribute more. Tr. 2987:10-2988:3. Even if the data were available, what the Government was trying to do would require the modeling equivalent of a microscope, which they did not offer. Tr. 2987:7-9; 2987:2-2988:3.

2. **The Government's experts failed to provide any competent and persuasive evidence that any portion of Plaintiffs' damages resulted in flooding that was not caused by the MRRP or to otherwise "incrementalize" Plaintiffs' damages.**

- a. **Dr. Holmes**

286. The Court finds that Dr. Holmes' modeling is inherently unreliable. Tr. 1761:22–1763:6; 1767:21–1768:5; 1771:12-15.

287. Dr. Holmes admitted on direct that, in trying to model WSEs, he lacked observations at the Plaintiffs' properties "where we need it" and as a result, he had to rely on modeling that he "can't really calibrate very well," "sacrificing accuracy," and introducing a "lot of uncertainty." Tr. 1602:19-23; 1603:5-23; 1613:2-1614:15. Despite all this uncertainty and "warts," Holmes testified that an interpolation model may be the only way to accomplish long-term modeling of the Missouri River because creating an accurate model using HEC-RAS and other physics-based modeling software is not practical given all the uncertainties with dynamic channel change, sediment transport, other hydraulic changes, and the numerous assumptions and parameter adjustments required. Tr. 1613:2-1614:15; 1615:13-25. Dr. Holmes had no confidence that a HEC-RAS model could have produced any more reliable or accurate results. Tr. 1699:22–1670:8.

288. Dr. Holmes admitted that the gages are not capable of picking up WSE increases due to changes some distance downstream, but instead is relying on WSE increases from changes closer downstream to act as "surrogates" for other changes in the River. Tr. 1629:3-10. Dr. Holmes admitted, however, that he had done no study of where MRRP projects were located relative to the gages, and had no idea whether WSE increases from any projects closer to the gages were of similar magnitude to those caused by projects closer to Bellwether projects. Tr. 1751:10–1752:5. To the contrary, the Government's own Phase 1 expert, Mr. Woodbury, did study these issues and

agreed with Dr. Christensen that MRRP projects are generally removed from the discharge gages and the gages are less prone to the influences of MRRP projects by being removed from them. **PX3705** (2017 Woodbury Phase I Tr., p. 11681); **PX3707** (2016 Christensen Report, pp. 98-99).

289. Dr. Holmes was restricted by the DOJ in terms of the type of modeling he could employ to estimate WSEs, and was not permitted to explore the modeling solution he would have selected himself. Specifically, he was instructed to interpolate from measured flows at discharge gages rather than using a physics-based modeling solution like HEC-RAS, which would be the professional standard of practice, as well as the first choice of Dr. Holmes. Tr. 1703:11–1704:17.

290. Dr. Holmes used outdated water surface profiles for the critical process of determining his prorations. He testified that, “[t]he whole reason you go through the trouble of interpolating is to try to reflect the actual water surface profiles of the locations you’re modeling” and that “[t]he proration is the way that localized effects caused by such phenomena as channel geometry irregularities or changes in roughness on the water surface profiles can be compensated for.” Tr. 1705:4-16. He further testified that “[t]he water surface profiles are the primary way that a model like yours can reflect channel geometry and morphology at localized spots within a river reach,” and that “changes in channel morphology and geometry and roughness over time can be reflected in changing water surface profiles.” Tr. 1705:25–1706:9. Yet, when he determined his proration schemes for his modeling, Dr. Holmes was not aware of the significance of the changes to the Missouri River channel subsequent to 2003. Tr. 1707:3–1709:3. He was not aware of any changes in roughness subsequent to 2003 when he determined his proration relations. Tr. 1709:21–1710:4. Dr. Holmes’ proration relations at the Bellwether properties do not factor in any post-2003 data points. Tr. 7120:19–7121:6; 1714:2–1715:11 (Adkins); 1715:12-23 (Ideker); 1715:24–1716:13 (Schneider).

291. The “assessment” tested not only different locations than the Bellwether properties, but different modeling approaches because Dr. Holmes interpolated differently for his “assessment” points than for the Phase II Tracts. While none of Dr. Holmes’ proration relations for the Bellwether properties factored in post-2003 data, all of Dr. Holmes’ prorations for his stream gage “assessment” points did include 2011 data. Tr. 1720:19–1721:6; 1716:19–1717:19.

292. Corps profiles from the 2003 UNET study were based on bathymetric and terrain data from 1994-1999 and would have been more representative of conditions prior to 2004 than during the subsequent decade. **PX3702** (2016 Woodbury Rebuttal Excerpt); Tr. 1722:2-23 (Holmes did not disagree and claimed he “had no access” to more updated water surface profiles).

293. In Phase I, Mr. Woodbury used the 2015 water surface profiles for his work and criticized Dr. Christensen for not incorporating the newer hydraulic information even though, unlike for Dr. Holmes’ 2020 analysis, those water surface profiles were only compiled in the lead-up to the Phase 1 trial. Tr. 1722:24–1724:10. Asked whether he would agree that using an outdated hydraulic profile for the river is not best practice for a study like his if he is trying to be accurate, Dr. Holmes said he could not give a yes or a no, but also admitted that he did not disagree that it was not best practice to do so. Tr. 1723:24–1724:21.

294. Dr. Jeff Bradley, who Dr. Holmes understood to be another designated Government testifying expert and who Dr. Holmes regards as a well-respected water engineer, disagreed with the methodology employed by Dr. Holmes. Tr. 1724:22–1728:10; *see also* **PX3738** (Dr. Bradley admission that using outdated water surface profiles is not best practice. The better practice would be to use different water surface profiles for the different time periods being compared.)

295. The Corps’ own updates of bathymetric and water surface profiles showed significant roughness increases at Phase II Tracts between the 2003 and 2015 reports, and the

increased roughness stabilized through the 2018 update (from “open water” to practically “sandbar” for Adkins, and halfway from open water to sandbar for Ideker). **PX3718** (Nov. 2013 Flow Frequency Study); **PX3716** (May 2015 HEC-RAS Report). Dr. Holmes had no idea about these changes or what the changes were at Buffalo Hollow. Tr. 1728:11–1734:20. He used no bathymetric data or water surface profiles reflecting these or other post-2003 changes, and admitted changes in depth and geometry would not be reflected in his modeling. Tr. 1736:5-15.

296. Dr. Bradley admitted that the 2003 UNET study’s water surface profiles – the ones used in Dr. Holmes’ modeling – would not represent the significant differences in bathymetry associated with river changes at issue in this case. **PX3739** (Bradley 6/19/20 Deposition, p. 36).

297. Dr. Mays opined that there is no logical reason why Dr. Holmes failed to use post-2003 water surface profiles given that Missouri River water surface profiles that reflect the changes in river geometry, morphology, and roughness that have occurred since 2003 do, in fact, exist. Tr. 2989:23–2990:5; **PX3719** at USACE2571076 (May 2015 HEC-RAS Report).

298. Dr. Mays opined that it is actually not surprising that the Government expert analyses that rely on Dr. Holmes' modeling seem to show minimal or no change over time. This is a product of the circular reasoning inherent in the methodology. In the real world, the river's geometry and roughness was altered due to the Corps' unprecedented river changes starting in 2004, as the Court found during Phase I. But Dr. Holmes' modeling of the actual scenario used the same water surface profile and the same proration relation throughout his entire period of analysis. In other words, his model is hard wired to ignore any changes to the geometry and roughness of the river after 1998. Thus his modeling will inherently underestimate the magnitude of the effects of the river changes on Bellwether properties. Tr. 2992:12–2993:12.

299. On the Missouri River, backwater effects from increased water surface elevations propagate only upstream and dissipate as they move over distance. Tr. 1744:14–1745:8. Discharge gages are not capable of picking up WSE increases from well downstream. Tr. 1751:5-17; 1760:1-7; 1761:25–1762:17. While Dr. Holmes believed that his model’s failure to pick up increases at the Bellwether properties would be made up for by its reflecting MRRP projects closer to the gages, he did no study of how much WSE increases result from different MRRP projects or types of projects, nor did he study where MRRP projects are relative to the discharge gages. Tr. 1751:10–1752:5.

300. Dr. Bradley admitted in his deposition that “a one-dimensional model” such as the one employed by Dr. Christensen to predict WSEs, would not “pick up a localized effect such as Corps modifications to channels ... whether it’s UNET or whether its RAS or whatever survey involved,” and unless one could “fake a model out,” he could not think of any way that interpolations from discharge gage data would be able to capture increased WSEs resulting from a channel change subsequent to 2007 that was more than five miles downstream of a discharge gage. **PX3703** (Bradley 6/19/20 Deposition, p. 39); **PX3704** (Bradley 6/19/20 Deposition, pp. 150-151).

301. Dr. Bradley admitted that the effects of a WSE increase attributable to a channel change are localized and would “propagate out in a several mile distance” rather than over 20 or 30 miles. **PX3762** (Dr. Bradley 6/19/20 Deposition, 98:21-99:12); Tr. 2963:17–2964:8 (Mays).

302. Dr. Holmes says that the discharge gages act as “integrators” of all changes in the dynamic Missouri River and, therefore, interpolating from those gage readings can still reflect physical changes in the River, but Dr. Bradley admitted that this position was not defensible. **PX3706** (Dr. Bradley 6/19/20 Deposition, pp. 133-134); Tr. 1756:1–1757:14 (Holmes).

303. Dr. Holmes only believed that the “predominance” of his WSE estimates would be accurate to within plus or minus a foot. Tr. 1764:23–1765:6. Thus, despite his implication that his modeling was highly accurate, his own opinion was that a bare majority of his modeled WSEs would fit within a two-foot band around actual WSEs. Meanwhile, Plaintiffs testified that inches can make the difference between flooding and no flooding and Dr. Holmes did not disagree. Tr. 1765:14–1766:11; **PX3710** (Mar. 2017 Phase I Tr., p. 2873); **PX3711** (April 2017 Phase I Tr., p. 4164).

304. Dr. Holmes was not aware of how other Government experts intended to use his data and, had he been asked to inform or perform an analysis like Mr. Jones offered, he would have been doing a statistical analysis of his data, including looking at uncertainty levels and trends in the data. Tr. 1766:22–1768:5. In contrast, Dr. Mays provided DOJ with 95% confidence level bands around his modeling results, which provided transparency. Tr. 2993:13–2994:13. Without uncertainty levels, we cannot compute statistical significance of Mr. Jones' conclusions. Tr. 2042:24–2043:7.

305. Dr. Holmes admitted that he did not validate his model. Tr. 1769:16–1770:12.

306. Even the “assessments” that Dr. Holmes did use lumped in data from the ‘70s, ‘80s, ‘90s and early 2000s, with his data from the post-2006 timeframe, so there is no quantitative analysis of how his assessment performed during the post-2003 timeframe. Tr. 1771:16–1773:13.

307. Dr. Holmes’ “assessments” at both Plattsmouth and Brownville revealed his modeled WSEs regularly missed measured WSEs after 2004 by many feet, both at low flows and high flows, and Dr. Holmes admitted that he had no idea how those results would compare to accuracy of WSEs at Bellwether properties, which were 20 or more miles away and at which WSEs were modeled using completely different proration relations. Tr. 1773:14–1777:17.

308. Dr. Mays explained how Dr. Holmes' own reported assessments mixed pre- and post-MRRP observations and also mixed low flow observations with high flow observations. Dr. Mays separated out and analyzed how Dr. Holmes' assessments performed only during days where Bellwether properties in the same reach were experiencing MRRP flooding. He found that, of 50 data points at the Brownville gage, 49 showed under-predictions with an average under-prediction of almost two feet. **PX3496** (Flow Chart); Tr. 2994:14–3000:15. For a similar analysis at the Plattsmouth gage, approximately two thirds of the observations showed under-predictions with a clear trend over 100,000 cfs of under-predictions that ranged up to five feet. **PX3498** (Flow Chart); Tr. 2994:14–3000:15. Even the charts that Dr. Holmes himself presented revealed large misses relative to measured WSEs, including some misses as much as 6 or 7 feet and routine misses of over 2 feet. **DX7005-0047** (Model-Observed Flow); **DX7005-0050** (Model-Observed Flow). These large and routine misses are a sufficient alternative basis to determine that Dr. Holmes' modeled WSEs are inaccurate and not sufficiently reliable for the purposes the Government offers them. Tr. 2994:14–3000:15.

309. Dr. Holmes admitted that he had no way to assess or check his model's performance at the Bellwether properties. He admitted that his own "assessments" could not actually be used to assess the accuracy of his model for the Bellwether properties. Tr. 1789:16–1791:9.

310. Dr. Holmes' modeled WSEs were highly inaccurate during the only flooding events at a Phase II Tract at which we have actual measured data. The Oregon stream gage, which was in operation from 2009 through mid-2011, is located at River Mile 477, with Buffalo Hollow Farms directly across the River. Tr. 1777:18–1778:12 (Holmes); 3000:16–3001:14 (Mays). During the 2010 and 2011 floods, Dr. Holmes' modeled WSE missed the actual recorded WSEs by an average of 3.14 feet per day over two weeks and 3.27 feet over 16 days, respectively.

PX3709, PX3722 (Holmes Comp. Charts); Tr. 1779:14–1786:4. During those same two date ranges (totaling 30 days) where Dr. Holmes' modeled WSEs at Buffalo Hollow Farms differed from actual measured WSEs at the Oregon stream gage by 3.14 and 3.27 feet, respectively, his own "assessment" showed his model missing by a mere 2.66 inches and 3.4 inches. Tr. 1786:5–1788:24; **PX3744, PX3745** (Holmes Comp. Charts)

311. Dr. Mays opined that the fact that Dr. Holmes' model is consistently off by over 3 feet during high flow conditions at Buffalo Hollow reflects a significant problem with his model's accuracy and ability to reflect actual water surface elevations during flood conditions, which are most relevant to this case. Tr. 3001:15–3002:34. Critically, Mr. Jones exclusively relies on Dr. Holmes' flawed modeling to draw conclusions about days of potential flooding that result at various water surface elevations. Dr. Mays opined that it is not scientifically defensible to use Dr. Holmes' modeling for this purpose given how poorly his model predicted water surface elevations match USGS data. Tr. 3002:4–3003:3; **PX3709, PX3722** (Holmes Comp. Charts).

312. Dr. Mays also opined that Dr. Holmes' reported assessment at Oregon does not tell the entire story. Dr. Holmes' assessment at the Oregon gage purports to show misses of only a few inches while his actual misses at Buffalo Hollow are up to 10 times greater. Dr. Holmes noted that his assessment points use different proration relations than the Bellwether properties. But Dr. Mays explained that this is a reflection of a larger problem – while Dr. Holmes can assess the accuracy of his stream gage proration relations, he did not and could not even test the accuracy of his Bellwether prorations. Tr. 3003:8-25 (citing 1775:8-11, 1777:15-17, and 1789:1-6).

313. Dr. Mays explained that less than one third of Dr. Holmes' large overestimations of WSEs during flooding at Buffalo Hollow Farms could be explained by the fact that his model

treated Oregon stream gage and the Buffalo Hollow Farms Phase II Tract as being a mile apart. Tr. 3004:15–3005:8.

314. Dr. Mays explained why Dr. Holmes’ large overestimations of WSEs at Buffalo Hollow Farms during 2010 and 2011 are not inconsistent with Dr. Mays’ opinion that Dr. Holmes’ methodology will underestimate WSEs at Bellwether properties during flooding, and instead were a quirk of his own modeling decisions that were not present in Dr. Christensen’s modeling and not reflective of any larger trend of over-predictions. Tr. 3007:7–3011:7. Dr. Mays also opined that occasional over-predictions are to be expected given data scatter, the inherent inaccuracy of gage interpolation methodology, and the fact that different locations along the river will experience larger localized increases in WSEs attributable to the MRRP changes. Tr. 3011:8-21.

315. Due to the facts described above, Dr. Holmes’ modeled WSEs are not sufficiently accurate to be relied upon.

b. Mr. Jones

316. Mr. Jones does not have a doctorate in the relevant (or any) field. Tr. 1997:8-11.

317. Mr. Jones reviewed the testimony of the bellwethers in this case and believes they testified truthfully. Tr. 1999:14-2000:3.

318. Mr. Jones has not studied whether flooding patterns have changed along the Missouri River over the past 15 years, nor does he have any opinions to offer regarding flooding severity. 2004:7-15.

319. Mr. Jones’ opinions about “flooding exceedances” relate only to indications of “potential flooding” and he offers no opinions about when any Plaintiffs (or other basin residents) actually flooded. Tr. 2006:3-19. Beyond what the Plaintiffs themselves testified to, Mr. Jones has no evidence of Bellwether flooding prior to 2007. Tr. 2007:11-24.

320. Mr. Jones believes it is improper to equate WSE threshold elevations and flooding on a one-to-one basis and more information would be needed – information that Mr. Jones does not offer. Tr. 2008:4-2010:1. It would be a leap of logic to conclude that days of exceedance equates to a similar number of days of flooding on a property. Tr. 2010:2-6.

321. Mr. Jones is not offering any type of analysis that could build on his opinions regarding days of exceedance to assess actual flooding, and is aware of no expert who could do so nor any formula to translate threshold elevation exceedances into flooding actually experienced. Tr. 2010:18-2011:20.

322. Mr. Jones' conclusions depended upon the accuracy of Dr. Holmes' estimated WSEs. Tr. 2012:22-2015:3. To support the analysis Mr. Jones was asked to do, he needed accurate WSEs post-2007. Tr. 2015:11-21.

323. If, after 2007, WSEs had become elevated during high water events because of channel changes in the river, Mr. Jones agreed that it is critical that any method used to assess WSEs accurately determines those elevations. Tr. 2012:11-18. He agreed that, if Dr. Holmes WSEs are unsupported, then his conclusions are unsupported. Tr. 2017:24-2018:8.

324. Dr. Mays opined that Mr. Jones' analysis and conclusions are discredited because they rely on Dr. Holmes' flawed modeled water surface profiles that underestimate the full magnitude of the effects of the MRRP river changes and are otherwise regularly inaccurate by a magnitude of feet. Specifically, Mr. Jones' calculated days of exceedance are inaccurate and entirely unreliable. Tr. 3012:2-16.

325. Mr. Jones agreed that more recent water surface profiles than those reflected in the Corps' 2003 study were available publicly and that those profiles would actually reflect the changes in river geometry, morphology and roughness that have occurred since 2003. Tr. 2023:5-

18. Mr. Jones could not understand how Dr. Holmes would not have access to that type of information, in light of the fact that the DOJ had already provided the Court with modeling from Mr. Woodbury which utilized more updated water surface profiles, and the Corps had provided Mr. Jones himself with more recent water surface profiles for use in this litigation. Tr. 2024:3-2026:9. Nonetheless, Mr. Jones never asked Dr. Holmes or the litigation team why Dr. Holmes was not utilizing the proper water surface profiles for the model. Tr. 2026:5-9.

326. Mr. Jones agreed that one way to construct a model would be to use the post-2003 water surface profiles for post-2003 years and pre-2003 water profiles for pre-2003 years. Tr. 2026:10-16. Mr. Jones also agreed that, had Dr. Holmes used more recent water surface profiles, neither Mr. Jones nor Dr. Holmes would have been put in the position of trying to convince the Court that the use of 20-year-old water surface profiles could produce accurate modeling results. Tr. 2027:1-19.

327. Mr. Jones admitted that he offers comparisons between the 1983-1997 period and the 2003-2018 period based on the results of modeling that used identical water surface profiles for the two periods of comparison. Tr. 2027:20-2028:14.

328. Dr. Bradley admits it is not best practice to use outdated water surface profiles and instead, Dr. Holmes ought to have used water surface profiles that reflected the then-current geometry, morphology and roughness of the relevant reach. **PX3738** (Dr. Bradley 6/19/20 Deposition, pp. 30-34).

329. Mr. Jones admitted that when Dr. Holmes' model missed actual WSEs by large amounts that could impact the reliability of his own conclusions. Tr. 2033:23-2034:1.

330. Mr. Jones was not provided confidence intervals from Dr. Holmes. Tr. 2041:20-2042:9. Because he was not provided confidence intervals, Mr. Jones could not report his results

with statistical confidence levels nor in any way that would allow Plaintiffs to determine whether conclusions were statistically significant. Tr. 2042:24-2044:11. This is a product of DOJ's litigation decision to use one expert for modeling WSEs and not telling that expert how his results would be used and having another expert opine about the implications of the first expert's modeled WSE's without the benefit of any confidence intervals. *Id.* Without uncertainty levels, neither the parties nor the Court can compute the statistical significance of Mr. Jones' conclusions. Tr. 2042:24-2043:7.

331. Mr. Jones' exceedance thresholds were simplifications that did not reflect reality. Specifically, large properties were modeled as though they occupied a single point in terms of latitude and longitude, as well as having single elevations at which the entire property would be potentially subject to different types of flooding. Tr. 2045:2-2046:15. In the real world, none of that is true. *Id.*; Tr. 2046:16-2047:11. In fact, Dr. Evans testified that he did not even feel that it was appropriate to use a single point of elevation as a proxy for blocked drainage. Tr. 2048:21-2049:5.

332. For calculating blocked drainage, Mr. Jones also modeled Mr. Ideker's property as having a drainage tube with a higher elevation on the river side than the land side, even though that does not reflect reality. Tr. 2071:15-2077:2; **PX3726** (Jones Mar. 2020 Report).

333. Mr. Jones' work assumed that properties always experienced flooding at exactly the same flows throughout time and, if exceedance thresholds for flooding changed over time, Mr. Jones' calculations would not have accounted for those changes. Tr. 2052:2-2052:12 The Bellwethers' testimony suggested that, in fact, those elevations did change over time. Tr. 2053:4-2055:19.

334. Mr. Jones' opinion that flood flow frequency at Phase II tracts was relatively unchanged over time did not even attempt to incorporate actual evidence of when flooding happened on those tracts. Dr. Mays observed that Mr. Jones also offers no evidence of whether Bellwether properties flooded, nor any way to equate his conclusions about river stages to flooding. Tr. 3015:5-9 (citing 2007:20 - 2008:9). According to Dr. Mays, Mr. Jones ignores the actual evidence of past flooding on the Bellwether properties. As a result, Mr. Jones' conclusions about a lack of significant change in flow frequency for 2- to 5-year events do not reflect any of the events of the MRRP river changes on flooding. Tr. 3014:23-3015:17.

335. Dr. Bradley admitted that, relative to the pre-MRRP timeframe, there has been a change in recurrence intervals at the Phase II Tracts with equivalent flooding events being more common now in the post-MRRP world. Dr. Bradley admitted that, relative to the pre-MRRP timeframe, there has been a change in recurrence intervals at the Ideker property for events like the 2008 flood and the 2010 flood, with equivalent flooding events being more common now in the post-MRRP world. Dr. Bradley admitted that, relative to the pre-MRRP timeframe, there has been a change in the recurrence intervals at the Buffalo Hollow Farms property for events like the 2008 flood and the 2010 flood. Per Dr. Bradley's analysis, the 2007, 2008 and 2010 events have longer durations due to MRRP-related changes. Per Dr. Bradley's analysis, the 2008 and 2013 events have longer durations at the Buffalo Hollow Farms property due to MRRP-related changes. **PX3740** (Dr. Bradley 6/19/20 Deposition, pp. 78-83); Tr. 2078:8-2084:7. Mr. Jones was not familiar with Dr. Bradley's analysis, did not dispute his conclusions and, given the opportunity, did not identify any inconsistencies between Dr. Bradley's conclusions with his own regarding changing flow frequencies at the Phase II tracts. Tr. 2084:8-2092:12.

336. Mr. Jones believed that it was “important” to compare his conclusions with Bellwether testimony for consistency as a “reasonableness check” on his conclusions and “corroboration” of his opinions. Tr. 2057:10-2060:7. Mr. Jones acknowledged, however, that his opinions were, in fact, contrary to the testimony of the Bellwether Plaintiffs. **PX3725** (Adkins Tr. 58:7-20; 167:16-22); Tr. 2056:19-2066:12. Mr. Jones agreed that this fact “certainly merits consideration.” Tr. 2066:16-2067:3.

337. The Bellwether Plaintiffs who testified in Phase 1 consistently offered very specific observations of how the river had changed, resulting in substantial additional flooding. Their testimony repeatedly tied that increased flooding to specific MRRP-related river changes. This testimony was not consistent with the opinions offered by Mr. Jones that the river was essentially unchanged from the 1983-1997 timeframe. **PX3721** (Phase I Tr. Excerpts); Tr. 2101:14-2124:1. Dr. Mays opined that Mr. Jones fails his own “reasonableness check” badly if one looks to this trial testimony. Tr. 3012:20–3013:10.

338. Mr. Jones testified that he did not have sufficient data or analysis to know whether localized changes in river geometry resulted in changed water surface elevations at a representative property, nor did he know whether such analysis had been accomplished by other experts in Phase 1 or Phase 2 of the litigation. Tr. 2125:12-2126:16.

339. Due to the facts above, Mr. Jones’ analysis and conclusions are not reliable.

c. **Dr. Evans**

340. Dr. Evans is a professor emeritus with N.C. State who last taught his course on DRAINMOD approximately 15 years ago. He has used DRAINMOD on only approximately 10 consulting projects in his life – having never used other groundwater modeling software for any consulting projects – and prior to this litigation, had never used DRAINMOD to model crop losses

due to river overflows, nor had he published any academic papers relating to using river water surface elevations to model crop yields. In fact, before attempting his work in this litigation, Dr. Evans had never even heard of an agricultural engineer using estimated water surface elevations from a river over a course of decades to model crop yields on specific properties. Tr. 2339:2-2534:21.

341. Dr. Evans considers groundwater modeling to be hydrology, but does not consider himself to be a hydrologist. He is neither a licensed nor a professional hydrologist. Tr. 2535:18–2636:2.

342. The results of Dr. Evans’ modeling were driven by the estimated daily water surface elevations. But Dr. Evans did not derive any of those WSEs himself. Tr. 2537:6-22. Instead, Dr. Evans received instructions from the Department of Justice to use WSEs from a spreadsheet it provided, which were represented to be the WSEs that Dr. Christensen had computed during the preparation of his own expert report but not introduced into evidence in either phase of this litigation. Tr. 2538:1-18. Even though they form the most important input in his modeling, Dr. Evans had no opinion about the accuracy of the WSEs he used. Tr. 2545:21-25.

343. Despite the fact that the spreadsheet provided by DOJ included Dr. Christensen’s computed WSEs dating back to 1990, Dr. Evans testified he did not notice that the spreadsheet had WSEs from before 2002. Thus, Dr. Evans used Dr. Holmes’ modeled WSEs for about half of the timeframe of his modeling, and used Dr. Christensen’s modeled WSEs for the other half. Tr. 2538:19-2540:16. Dr. Evans admitted that he did not know whether using Dr. Christensen’s modeled WSEs for the entire period back to 1990 would have resulted in more or less damages. Tr. 2541:14-20.

344. Dr. Evans agreed that Dr. Christensen had offered a caveat in his report that his water surface elevations generated from his model, especially after 2006, could only be viewed as approximate minimum estimates of the water level increases at particular Bellwether properties attributable to MRRP channel changes. But when Dr. Evans read Dr. Christensen's report, he did not notice that and went ahead and used Dr. Christensen's water surface elevations as reflecting the full and precise magnitude of all the increased water surface elevations. Tr. 2542:15-2543:1; 2543:7-11. Dr. Evans acknowledged that if actual WSEs were higher for a long period of time, it would have had a larger effect on his underestimations of damages, and that he did not and could not perform any analysis to see what the effect was on his modeling attributable to Dr. Christensen's underestimations of WSEs increases attributable to MRRP channel changes. Tr. 2544:2-2545:3. Dr. Evans acknowledged that he could not vouch for the accuracy of the WSEs he used nor was he aware whether any Government witness would testify that Dr. Christensen's modeled WSEs reflect the full magnitude of water surface elevation increases due to MRRP changes instead of reflecting only mere artifacts of those increases. Tr. 2546:1-20.

345. Dr. Evans did not disagree with Dr. Christensen's opinion that the water level increases computed at the gages should be viewed as minimum water level increases because the gages are located in more stable reaches of the river, nor that, at best, the gages show only a reduced and attenuated water level increase from downstream channel modifications, such as chutes, chevrons, wing dike notches, and the like. Tr. 2547:9-2548:1; 2548:6-16; 2549:2-5; **PX3707** (July 2016 Christensen Report, pp. 98-99). Dr. Evans did not disagree with Dr. Christensen's opinion that other relevant information as to what actually occurred must be considered and factored into WSE determinations, but also acknowledged that he did not factor any other information before

using the river simulation model's WSEs as representing what actually happened at the Bellwether properties. Tr. 2551:10–2552:8.

346. Dr. Evans admitted that his role in the Government's case was to attempt to demonstrate the incremental impact on crop yields from the MRRP and to use Dr. Christensen's WSEs as the basis of that analysis. Tr. 2557:1-9; 2537:6–2538:18. Until trial, he was unaware that the Government's own Phase 1 expert hydrologist, Mr. Woodbury, specifically opined in his expert report that it would be a "clear misapplication" of Dr. Christensen's modeled WSEs to attempt to assess the incremental impacts of the MRRP. **PX3702** (Sept. 2016 Woodbury Rebuttal Report Excerpt); Tr. 2557:10-2559:25. Dr. Evans agreed that experts from both sides of the litigation were in agreement that Dr. Christensen's modeled WSEs should not be used to measure the incremental impact of the differences between the actual and but-for condition. Tr. 2560:13-2561:10.

347. Dr. Evans modeled the soil "blanket" at every location on each Bellwether property and throughout time as being 10 feet thick, even though he knew that did not resemble reality. Tr. 2565:9-2566:23. Dr. Evans admitted that there were a number of other large uncertainties associated with input parameters for his modeling, and that Dr. Evans' team did not measure all those values in the field or the lab to know what those values were. Tr. 2567:20-2568:14. Some of those uncertainties can be many orders of magnitude and vary considerably in small physical distances. *Id.*

348. Dr. Evans "calibrated" his model by manipulating parameter values in his model and dialing them up or down until he could match, as closely as possible, a set of observed data. Tr. 2569:15-2571:22; 2577:4-11. Dr. Evans' final calibration was to calibrate to Bellwethers' actual crop yields. But Dr. Evans acknowledged that, in the real world, years with lower crop

production can result from insects, weeds, hail, nutrient deficiency, etc. Tr. 2571:23-2572:17. Dr. Evans acknowledged that his process inevitably led to his adjusting groundwater parameters to attempt to match years of low crop production that were, in fact, actually caused by factors having nothing to do with groundwater levels or river WSEs. Tr. 2573:17-2575:8. In reality, Dr. Evans had no way to explain why his modeling was over predicting crop yields in some years and under predicting yields in other years. Tr. 2573:6-16.

349. Dr. Evans admitted that he did not validate his model. Tr. 2576:2-8.

350. Dr. Evans tried to calibrate his groundwater model using USGS well data to see if his model was adequately simulating groundwater conditions. Tr. 2578:3-16. But the nearest wells to the Adkins property were 40 and over 60 miles away, respectively. Tr. 2579:9-25. The nearest wells to the Ideker property were roughly 35 and 60 miles away, respectively. Tr. 2580:1-7. Moreover, two of the four wells used for Dr. Evans' calibration were so close to the river that he acknowledged that they did not provide a meaningful test of his model. Tr. 2580:12-2581:22. For the remaining two wells, even after completing his calibration to try to match well data as close as possible, Dr. Evans' modeled groundwater elevations regularly missed actual elevations by many feet. Tr. 2582:1-2583:19; 2585:2-24 (Dr. Evans testified that he would need a 4-foot band to provide him 95% confidence in his results for the third well.).

351. Dr. Mays opined Dr. Evan's groundwater calibration was critically flawed. Tr. 3027:14-3028:5. Dr. Mays opined that these wells are too far away, particularly for the Adkins and Ideker properties, "to provide useful comparison points for groundwater model calibration." Tr. 3027:14-3028:9.

352. Dr. Evans proposed testing his model's matching of real world data through the use of a measure called the Nash Sutcliffe Efficiency ("NSE"). Tr. 2577:12-2578:2. But, while Dr.

Evans determined that any NSE value of over .65 was a “good” fit (Tr. 2588:14-17), another published guideline from a journal Dr. Evans identified as an “authoritative” and peer-reviewed journal suggested that NSE values under .65 should be considered “unacceptable.” Tr. 2589:13-2590:22. Per this guideline, Dr. Evans’ groundwater modeling results would be considered borderline “unacceptable,” and his final modeling of Plaintiffs’ soybean yields would also be considered “unacceptable.” Tr. 2588:3-17, 2603:3-11 (Moreover, Dr. Evans’ reported NSE for the 4th well of his groundwater calibration was only .56, which would also be “unacceptable” under the alternative published standard. Tr. 2588:6-9).

353. Dr. Evans testified that accurate simulation of the timing and duration the groundwater is at or near the surface is prerequisite for simulating crop yields during wet conditions. Tr. 2595:4-9. Even Dr. Evans admits that it uses “relatively simple, approximate physical relationship.” Tr. 3023:15-17. Dr. Mays testified to the fact and reasoning why “there is no scientific consensus that DRAINMOD can successfully simulate the dynamics of water in the unsaturated zone.” Tr. 3023:18-3024:10 (Mays). Dr. Mays also testified that the consequence of Dr. Evans’ use of a “blanket,” with the same hydraulic conductivity and thickness for all of his applications, was sacrificing reliable modeling. Tr. 3028:10-3029:23 (Mays); **PX3522** (Evans Fig. 5.12). Dr. Mays explained that, despite it being critically important to adequately model the near surface condition, his modeling could not adequately model that groundwater condition. Tr. 3024:20-3025:19 (Mays); **PX3515** (Evans Fig. 5.7). Holden & Burt (2003) concur that “DRAINMOD inherently lacks” this quality. Tr. 3025:16-19; **DX6112** (Holden & Burt article).

354. Dr. Evans testified that, even after going through the trouble of calibrating to find the vertical and horizontal conductivities that could help his model most closely match measured USGS well data to simulate the duration that groundwater was at or near the surface, he

disregarded those parameter values and began to manipulate them anew when he attempted to match his modeling results to reported crop yields. Tr. 2595:15-2598:20.

355. Dr. Evans ran out of time before completing the calibration of his model to reported crop yields. Tr. 2601:16- 2602:20. Although he could not testify whether damages calculated for the Plaintiffs would have been higher or lower or by what amounts if he had completed his calibrations, he offered testimony based on his incomplete modeling. *Id.*

356. Dr. Evans would not agree with the basic and seemingly uncontroversial statement that even relatively poor models can show some correlation with real world data. Tr. 2604:14-19. This was not a credible opinion.

357. Dr. Evans was no more or less confident in his results for the Adkins property than his results at Ideker or Buffalo Hollow. Tr. 2605:1-8. Yet, even after calibrating his model to match reported crop yields as closely as possible, Dr. Evans' modeling results had enormous absolute average margins of error relative to reported yields at the Adkins property. Tr. 2605:20-2617:8; **PX3732, PX3733, PX3734, PX3767** (Charts). This was true for both corn and soybean production. *Id.* The extremely large error rates were not limited to those sections of the Adkins Phase II Tract where crop yields were reportedly mixed with non-bellwether parcel production, but persisted for other fields. *Id.*

358. Dr. Evans' modeled results did not fare much better for the Ideker Phase II Tract, with enormous error rates during many of the years where the Court already found MRRP-flooding or where Plaintiffs claim MRRP flooding has continued post-2014. Tr. 2617:9-2623:24; **PX3768, PX3770, PX3769** (Charts). These very high absolute mean error rates are not the result of "cherry-picked" data because the charts include all Ideker irrigated and non-irrigated fields for corn and soybeans. *Id.*

359. Dr. Evans' very large absolute mean error rates relative to reported crop yields also appeared with respect to his modeled results at Buffalo Hollow Farms. Tr. 2623:25-2624:17; **PX3771** (Mays Fig. 5.21).

360. Dr. Mays opines that Dr. Evans should have validated "his results of the calibration through a comparison of observed groundwater elevations with reported groundwater elevations at the Bellwether Properties." Tr. 3030:11-3031:1. However, Dr. Evans did not possess those elevations and did not determine them. *Id.* Dr. Mays testified that instead of following these proper validation steps, Dr. Evans "compared simulated yields of crops from his crop model in DRAINMOD with reported crop yields to perform his calibration," which resulted in astronomical model errors. Tr. 3031:2-7 (Mays).

361. Dr. Mays found that his criticisms of the poor calibration of Dr. Evans' model were supported by simply examining Dr. Evans' own model results. Tr. 3031:10-12 (Mays). Dr. Evans presented the Court with several graphs that purportedly showed a "good fit comparison between his simulated crop yields and reported crop yields." Tr. 3031:13-16 (Mays). However, Dr. Mays testified that, upon reviewing Dr. Evan's own comparison data of simulated and reported crop yields and calculating the associated model error, he discovered astronomical error rates, even as high as 386.5% error in one instance, proving that Dr. Evans' modeling methodology and calibration were both deeply flawed. Tr. 3031:24-3032:5 (Mays). Dr. Mays found that Dr. Evans' analyses at each of the Bellwether Properties were riddled with large errors and defied reality. Tr. 3032:5-9 (Mays).

362. Dr. Mays applied a simple and common statistical equation to calculate Dr. Evans' error rate – (Dr. Evans' simulated yield minus Dr. Evans' reported yield) divided by (Dr. Evans' reported yield). Tr. 3032:13-16. This equation was used to compile the litany of charts and tables

demonstrating Dr. Evans' large modeling errors. Tr. 3032:20-3033:5 (Mays); **PX3732, PX3733, PX3734, PX3767, PX3768, PX3769, PX3770, PX3771** (Charts). Dr. Mays affirmed that many similar examples could be found from other fields and years in Dr. Evans' data. Tr. 3033:6-10 (Mays).

363. Dr. Mays remarked that Dr. Evans did not disclose his model's overall absolute mean error percentage (in the aggregate or by field) in either his expert report or his testimony to the Court. Tr. 3033:13-16 (Mays). Instead of addressing the high absolute mean error percentages, Dr. Evans choose to summarize the inaccuracy of his model only by discussing Nash-Sutcliffe efficiency (NSE) and R squared. Tr. 3033:17-20 (Mays). Dr. Mays opined that NSE can be a misleading measure of whether a model is actually matching observed data, as is the case here with Dr. Evans' data. Tr. 3033:21-25 (Mays). Dr. Mays concluded that, given the astronomical error rates he discovered in Dr. Evans' data, the "fact that Dr. Evans' model has such regular and high magnitude misses compared to actual, observed results suggests that Dr. Evans' modeling should be rejected outright, and that Dr. Evans' model fails to provide useful information about modeled crop yields under any condition." Tr. 3034:1-9 (Mays).

364. At the end of Dr. Evans' testimony, the Court asked him if his overall simulated actual crop production was an overestimation or underestimation relative to reported yields in the aggregate. Tr. 3034:11-15 (Mays); Tr. 2642:25-2644:15. However, Dr. Mays explained that, for any model specifically calibrated to match reported crop yields, "it is axiomatic that final modeled crop yields will closely match reported crop yields if viewed from a completely aggregated level." Tr. 3034:16-20 (Mays). Thus, in order to examine if Dr. Evans' model has useful information, Dr. Mays testifies that one would need to check the model's performance at the field level by year. Tr. 3035:1-10 (Mays).

365. Dr. Evans did not maintain that the charts presented by the Plaintiffs to illustrate his error rates were in any way inconsistent with his overall results and instead testified that the magnitude of the mean absolute error rates was not unexpected given that as little as 60% of year-to-year variability in yields is due to water and that he did not have time to run a phenological crop model that could have produced more accurate results. Tr. 2624:20-2627:13.

366. Dr. Evans made an effort to compare his modeling results to the testimony of Bellwether Plaintiffs because he believed that consistency would be “validation” of his modeling, but was also aware that the Bellwether Plaintiffs had testified they were subjected to a new worsened flooding pattern as a result of the MRRP. Tr. 2627:14-2628:13.

367. Dr. Evans did not factor in any changes to the river in any way in the modeling of Plaintiffs’ farming from 1990 to 2018, and agreed that the only way those changes would be reflected in his modeling would be to the extent that both Dr. Holmes’ and Dr. Christensen’s modeled WSEs accurately reflected all such changes. Tr. 2629:6-2631:11; **PX3765** (Dr. Hromadka Apr. 2017 Phase I Tr., pp. 5521-5528).

368. Dr. Evans acknowledged that he had no reason to disagree with Dr. Christensen’s opinion that his estimated “but for” water surface elevations are of still “lesser accuracy” than his modeling for the “actual” condition. Tr. 2631:15-2633:6; **DX4900-A** (Christensen Report). Dr. Evans acknowledged that he could not vouch for the accuracy of either Dr. Christensen’s modeled “actual” or “but for” WSEs, but stated he believed he might be able to offer opinions if he were a professional hydrologist. Tr. 2633:7-13. Dr. Evans admitted he was aware of no Government expert who would testify that Dr. Christensen’s water surface elevations sufficiently captured the magnitude of any changes to form an adequate basis for Dr. Evans’ modeling. Tr. 2633:14-20.

369. In addition to testifying to DRAINMOD's flaws as a model, Dr. Mays opined regarding further failings of Dr. Evans' modeling regarding input parameter and date uncertainties. Tr. 3025:22-25 (Mays). Dr. Mays testified that "Dr. Evans failed to perform a sensitivity analysis for his various input parameters, including the horizontal hydraulic conductivity of the aquifer and the vertical hydraulic conductivity of the blanket." Similarly, Dr. Mays opined that Dr. Evans blindly accepted, without performing any sensitivity analysis, Dr. Christensen's and Dr. Holmes' WSEs even though they are just "approximate minimum estimates." Tr. 3026:5-15 (Mays). He opined how such non-validated input parameters and data inputs are added into the DRAINMOD Soil Water Profile Water Balance Model to project the groundwater elevations in time and location, leading to unreliable results. Tr.3026:16-3027:12; **PX3519** (DRAINMOD Chart).

370. Dr. Mays testified that, even if Dr. Evans' model was properly working, which he established it was not, there would "still be no way to justify how he blends his reliance on Dr. Christensen's and Dr. Holmes' modeled" WSEs. Tr. 3036:10-16 (Mays). Nor would there be any way to justify utilizing Dr. Christensen's modeled "but for" WSEs when both Dr. Christensen and the Government's Phase I expert, Mr. Woodbury, both agreed that those WSEs were not sufficiently representative of the actual WSE increases to measure the full incremental effects of the MRRP river changes. Tr. 3035:18-3036:16 (Mays).

371. Due to the facts detailed above, Dr. Evans' analysis is not reliable.

372. In conclusion, based upon his education, many years of research and consulting experience on matter of hydrology and hydraulics, his experience of flood-related litigation over the past 40 years, and his extensive acclaimed academic publications on these topics, Dr. Mays finds that the Government experts' analyses and opinions to be unproven, incorrect, unreliable,

and misleading. Dr. Mays opined that the modeling and opinions of Dr. Holmes, Mr. Jones, Dr. Earles, and Dr. Evans should not be relied upon by this Court. Tr. 3037:13-23 (Mays).

VI. DR. BATEMAN'S QUANTIFICATION OF PLAINTIFFS' LOSSES, THE IMPROPRIETY OF SET-OFF, AND THE PRUDENT INVESTOR RULE

373. Dr. Bateman's opinions are credible, reliable and helpful in quantifying the just compensation for Plaintiffs' losses.

374. According to Dr. Sunding, Dr. Bateman used a standard approach to calculate the Plaintiffs' losses. Tr. 2914:15-25 (Sunding)

375. Dr. Bateman considers his loss calculations for the Phase II Plaintiffs to be conservative and constitute just compensation for Plaintiffs' losses. Tr. 720:21–721:2.

A. Dr. Bateman's Qualifications

376. Dr. Bateman received his BS in economics from the University of Utah in 1960, and his Ph.D. in economics from MIT in 1965 with a special emphasis on price theory as applied to financial and agricultural commodity markets, econometrics. Tr. 563:19–564:2; **PX3214** (Dr. Bateman's CV).

377. Dr. Bateman is an agricultural economist and wealth management advisor/consultant. He is the founder and owner of BJO Capital Management, Inc. in Provo, Utah. The firm engages in wealth management advisory, investment and consulting services. He has been licensed by FINRA to manage funds for corporations and high net-worth individuals. He has experience in assisting and determining farm losses and commodities, and has extensive training and experience dating back to 1971 in valuing and pricing commodities. Tr. 562:25–563:16.

B. Dr. Bateman's Approach to Quantify Plaintiffs' Losses

378. Utilizing his extensive experience and expertise in respect to valuing crops and commodities, Dr. Bateman obtained information from the Plaintiffs, the Federal Government, and reliable publications to determine the Plaintiffs' crop losses. Tr. 575:22–576:3.

379. Dr. Bateman determined what the yield and bushels per acre was for the flood years in question, the actual yield, and what the yield would have been but for the MRRP flooding – the expected yield. If the expected yield was greater than the actual yield, he treated it as a compensable loss and multiplied it by the number of acres in question. Tr. 577:3-13.

380. To obtain the value of the crops lost or destroyed, Dr. Bateman then multiplied the total bushels lost by the fair market value per bushel at the time of the taking. As to the fair market value of crop losses due to Plaintiffs not being able to plant because of MRRP flooding, he first determined what crops would have been planted and harvested but for the MRRP flooding, and then applied the same methodology as to existing crops that were destroyed, with one exception: he deducted the cost of the inputs that the Plaintiffs were not required to expend since the crops were never planted. Tr. 577:14–578:8.

381. Corn and soybean production has experienced strong upward yield trends during the last 80 years. **PX3217** illustrates the historical U.S. corn yields from 1866 to 2012. Tr. 578:9-15.

382. Dr. Bateman used national yield data in the beginning to determine the trends for corn and soybeans. *See* **PX3217-PX3223**. However, he made sure that each farm's yield data tracked closely with the national trend in the non-flood years. Plaintiffs' yield trends tracked closely with the national trends of two bushels per acre for corn and 0.5 or more for soybeans. He also examined the Missouri, Iowa and Kansas yield data to make sure their corn and soybean trends were similar to the national trends. Tr. 581:8-13; 584:6-18.

383. Dr. Bateman acquired reliable prices for corn and soybeans to be applied to the lost production. Buffalo Hollow Farms provided its own data taken from the farm's accounting records. For the other two tracts (Adkins and Ideker), price data was obtained from GeoGrain, a company that gathers 50,000 cash prices daily from over 4,200 markets throughout the United States. Dr. Bateman considers the GeoGrain database to be a reliable data source for his evaluation. Tr. 589:25–590:21; 591:20–21; *also see* Tr. 590:22–592:4.

384. In determining just compensation for losses to structures and equipment, as well as for expenses of flood prevention and reclamation, Dr. Bateman relied upon the data and documentation provided to him by the Plaintiffs. If documentation could not be provided for a claimant loss, he excluded it. Tr. 573:19–22; 610:25–611:13; 611:25–612:1.

385. Dr. Bateman found that, based upon his expertise as an agricultural economist, the replacement or repair cost presented by the Plaintiffs for losses and injuries to structures and equipment were what a willing buyer would have been willing to pay in cash for those injuries and losses at the time of the takings; *i.e.*, fair market value. Tr. 611:14–24.

386. Dr. Bateman was also provided with data as to the costs and expenses associated with the Plaintiffs' efforts to prevent the MRRP flooding in question, the same included sand bagging, rocking banks, constructing and repairing levees and berms. In addition, he was provided with the costs and expenses for reclamation (sand and debris removal, levee repairs, filling scour holes, etc.). His review of this data indicated that the costs presented by the Plaintiffs for these losses were what a willing buyer would have been willing to pay in cash for those injuries and losses at the time of the takings; *i.e.*, fair market value. Tr. 612:10–613:1.

C. Dr. Evans' Crop-Loss Opinions Are Inherently Flawed and Unreliable

387. Dr. Evans' use of simulated actual yields instead of actual reported yields, when those were available, creates the inference that it was done to increase the flexibility of the model to manipulate the results. Tr. 3250 (Bateman).

388. In contrast to Dr. Evans' opinions on crop loss, Dr. Bateman's opinions do not depend on water surface elevations and/or incrementalizing the flooding to determine causation. Tr. 3252:6-9 (Bateman).

389. Dr. Bateman compared Dr. Evans' simulated actual and simulated but-for yield estimates to show Evans' implied but erroneous impact of the MRRP floods on the Ideker, Buffalo Hollow and Adkins farms. Tr. 3249:1-6. Dr. Bateman also compared Dr. Evans' simulated actual yields in the flood years with each farm's actual yields in those years in order to show the inaccuracy of Evans' simulated actual. Tr. 3249:12-15 (Bateman).

390. Dr. Bateman further compared Dr. Evans' simulated estimates of his estimated yields in non-flooding years, which is the difference between Evans' simulated actual and his simulated but-for yields with Dr. Bateman's estimates of the MRRP flood impacts on yield to again illustrate the inaccuracies of Evans' modeling. Tr. 3249:16-20 (Bateman).

391. An examination of **PX3297** shows the Evans modeling does not make sense and contains significant error rates. As the MRRP floods cannot account for just five to 30 bushels versus the large losses of 100 or more bushels when Ideker Farms flooded in 2007, 2008 and 2010 for 30 to 90 days with one to 13 feet of water, and with blocked drainage and seepage problems lasting for 100 days or more. Tr. 3253:8-3254:8; 3254:17-24 (Bateman).

392. The Evans modeling demonstrates significant and substantial errors when comparing Evans' simulated actual with the actual yields experienced. Accordingly, there can be

no confidence placed in his modeling of the simulated actual or the simulated but-for yields. Tr. 3254:25–3255:2 (Bateman).

393. The actual yield data for all three Plaintiffs, for both corn and beans, contradicts Dr. Evans' statement that individual farm yields are static for several years followed by more of a step-up rather than a gradual increase. Tr. 3258:4-23; 3259:8-11 (Bateman); **PX3291** (Chart).

394. Dr. Bateman presented a series of charts for each Phase II Plaintiff comparing his real-world results to Dr. Evans' modeled results. Dr. Bateman presented charts comparing the simulated actual values with the Plaintiffs' actual values, as well as a comparison between Dr. Evans' actual and but-for estimates. These charts serve to demonstrate the accuracy of Dr. Bateman's results and the inaccuracy and large error rates in Dr. Evans' modeling, some as much as 50% or more. Tr. 3260:23–3261:16; 3262:20–3263:14; 3264:2-17; 3265:23–3266:9; 3268:3-16 (Bateman); **PX3296** (Bateman Dot Chart); **PX3297** (Ideker Chart); **PX3293** and **PX3298** (Buffalo Hollow Charts); **PX3299** (Adkins Chart).

395. Dr. Evans' criticisms of Dr. Bateman's trend yield approach are misplaced. Dr. Evans is confused and uses the wrong data to measure the reasonableness of Dr. Bateman's trend yields, or but-for yields. Dr. Evans determines an average yield by including both flood and non-flood years when the correct approach would be to use just the non-flood years so one can compare the flood years with the non-flood years to determine but-for yields. Tr. 3268:24-25; 3269:21-3270:15 (Bateman).

396. For Dr. Evans to use the average yield of the flood and non-flood years to estimate flood loss makes no sense at all. It minimizes the losses. Tr. 3273:2-15 (Bateman).

397. Dr. Evans' and Dr. Sunding's criticism of Dr. Bateman's use of the Adkins acreage provided in the answers to the Government's interrogatories for the Adkins Phase II Tract is and was misplaced. Tr. 700:21–701:21; 3274:1-6 (Bateman); Tr. 51:10–52:5 (Adkins).

398. Evans' analysis of the Plaintiffs' actual yields result in large errors, indicating that his model is unreliable and cannot be trusted. Large errors between his simulated actuals and the Plaintiffs' actuals occur repeatedly. Moreover, his but-for estimates closely approximate his modeling for "actuals," which one would not expect given the extensive flooding that occurred in 2007, 2008, 2010, 2013 and 2014, suggesting radical underestimations in Plaintiffs' losses. Tr. 3278:4-21 (Bateman).

399. Dr. Bateman's trend line approach to estimating the but-for values has merit because in almost every case, the Plaintiffs' actual yields were on or near the trend line in the non-flood years as they would be if the trend line is reasonably accurate. So this fact confirms the accuracy of the base yields and the two-bushel trend. If there had been no MRRP that caused the flooding, one could reasonably expect actual yields in 2007, 2008, 2010, 2013 and 2014 to have been near Dr. Bateman's trend line. Tr. 3279:8-18 (Bateman).

400. Evans' modeling and analysis assumes incorrectly that some of the crop losses resulting from the flooding in question were not caused by the MRRP, but by other unidentified variables or intervening causes. Tr. 3284:7-13.

D. Dr. Sunding's Rebuttal Crop-Loss Opinions Are Flawed and Unreliable

401. Dr. Sunding was designated by the Government as strictly a rebuttal witness to proffer critique, but not to express any affirmative opinions. Accordingly, whether his trial testimony be to rebut crop loss and interest rate opinions of Dr. Bateman or the valuing of a permanent flowage easement by Dr. Babcock, these opinions are not affirmative opinions. Tr. 2857:1-14 (Sunding).

402. There are two egregious errors in Dr. Sunding's crop loss calculations. First, his calculations are dependent on the validity of Dr. Evans' modeling results which are dependent upon Dr. Holmes' modeling results, which are just wrong. Second, his criticism of Dr. Bateman's choice of using the prices from the actual grain merchants with whom the Plaintiffs sold their grain during the years in question is unmerited. Instead, he selects grain merchants who had no dealings with the Plaintiffs to obtain his prices. In contrast, Dr. Bateman selected the grain merchant elevators used by the Plaintiffs after confirming those merchants with the Plaintiffs. Dr. Bateman's approach was not only the preferable approach, but the right approach. Practically speaking, there was little difference in the prices. Tr. 2917:3-19; 2918:3-2919:2 (Sunding); 1761:22-1763:6; 1767:21-1768:5; 1771:12-15; 3276:22-3277:12 (Bateman).

403. Dr. Sunding used and relied upon Dr. Evans' flawed modeling alleging a change in incremental yield due to flooding for each of the subject parcels, in his lost profit analysis and calculations. Tr. 2862:21-25; 2915:1-21 (Sunding). As a result, Dr. Sunding's lost profit analysis inherits the flaws of Dr. Evans' inaccurate and unreliable modeling results as explained more fully *infra*. Tr. 2916:21-2917:2 (Sunding).

404. Dr. Sunding has never used an approach like what he did in this matter with respect to flooding where he's taken a hydrologic model from another expert and then applied it to a particular flood and farm to determine the losses. Tr. 2920:8-14 (Sunding).

405. Even though he used Dr. Evans' flawed and unreliable modeling, Dr. Sunding concluded and still found the Plaintiffs had significant lost profits of over \$1.3 million combined for the Phase II Tracts over the years in question. Tr. 2920:22-2921:16 (Sunding).

406. The rebuttal opinions of Dr. Sunding do not undermine the opinions of Dr. Babcock or Dr. Bateman regarding the just compensation due to the Plaintiffs. There are numerous flaws in Dr. Sunding's analysis which render his opinions unreliable.

E. There Is No Factual Basis or Support for Set-Off as Confirmed by Mr. David Zanoni, USDA

407. According to Mr. David Zanoni of the USDA, the federal crop insurance records do not reveal whether any of the crop insurance payments made to Plaintiffs were due to flooding from the Missouri River. So the crop insurance records cannot be used to confirm a flood event from the Missouri River in any given year. Tr. 2729:10–2730:21.

408. Crop insurance claims can be made for a number of reasons if productivity is not achieved at the level of coverage provided. A claim for “excessive moisture” is not a claim for “flooding” due to a rising river, but can be for other reasons such as rainfall. Tr. 168:9-14 (Schneider); Tr. 262:1-6 (Ideker); Tr. 2700:4-21; 2701:5-16; 2728:6–2730:2 (Zanoni).

409. The farmer or insured does not make the decision on how to code a loss, and the claims information as documented may not, therefore, be helpful in determining flooding. Tr. 2726:1-13, 2728:6–2730:21 (Zanoni); Tr. 168:9-14 (Schneider).

410. There is shared risk between the insurance company and RMA. Tr. 2660:9-17. Some of the premium is paid to the insurance company and some of the premium is the Government's. Some of the indemnity is paid by the insurance company and some is the Government's. Tr. 2659:13-23. The terms are negotiated on how to share the premiums and indemnities under a variety of circumstances. The exact financial terms will vary based on a variety of circumstances within the reinsurance agreement. Tr. 2659:24–2660:7.

411. The indemnity paid in the crop insurance records provided by the Government is the amount paid by the insurance company, not the Federal Government. Tr. 2703:3-12 (Zanoni).

412. In response to a question from the Court, the Government’s witness stated that some of the premium is paid by the insurance company and some is paid by the Government. However, Mr. Zaroni only provided the rough general structure of the financial terms of the crop insurance premiums as the financial terms vary on the back end with the reinsurance agreement. Zaroni provided no testimony about what premiums or indemnity was paid by the Federal Government to the Phase II Plaintiffs. Tr. 2659:8–2660:17 (Zaroni).

F. Prudent Investor Rate for Delay Damages

1. Dr. Bateman’s Recommended Bond/Equity Rate

413. In calculating the rate of interest for delay damages as a component of the Plaintiffs’ just compensation for the takings, Dr. Bateman focused on adherence to the *Prudent Investor Rule*. Tr. 613:2–614:18.

414. Dr. Bateman opined that farmers are generally not adverse to moderate risk levels as they manage their operations. His experience is that most farmers are comfortable with an investment portfolio that contains stocks of high-quality companies, as well as corporate bonds in order to obtain a reasonable return. Tr. 616:18–617:12.

415. Dr. Bateman’s consideration of the Prudent Investor Rule led him to consider the Moody’s long-term Aaa corporate bond index (“Moody’s Rate), as an option to satisfy the *Prudent Investor Rule*. Tr. 618:13–619:17.

416. In calculating the interest due for delay damages and compounding same, Dr. Bateman used the dates of taking as found by the Court in the 3/13/18 Trial Opinion [ECF 426]. Those dates of taking began as early as April 2007 for Adkins, and as late as June 2014 for Ideker and Buffalo Hollow. Tr. 619:19–621:2.

417. Aside from considering the Moody’s Rate, Dr. Bateman considered the state statutory prejudgment interest rates, stock market rates of return, and corporate long-term bond

funds (ETFs). Tr. 621:4-16; 624:6-8; **PX3224** (Chart). Seeking adherence to the Prudent Investor Rule, Dr. Bateman believed that the two principles of diversity and balance are the key to managing risk when one invests in a mixture of bonds and stocks. It is this mixture of bonds and stocks that Dr. Bateman chose to attain a reasonable return for the Plaintiffs in a well-managed portfolio while managing risk. Tr. 627:23–628:14.

418. As for the interest rate to be applied by the Court under the Prudent Investor Rule, Dr. Bateman recommended a bond equity combination utilizing the iShares Core U.S. Aggregate Bond Exchange Traded Funds (ETF) by Blackrock with a trade symbol AGG, and the SPY Fund, created in 1993 by State Street Corporation, an American financial services and bank holding company, in cooperation with the American Stock Exchange. Tr. 628:16–630:4.

419. Dr. Bateman's decision to invest in these two ETFs provides quality, reasonable returns, and diversity with 505 stocks and a large number of bonds represented in the portfolio. With respect to bonds, the analysis assumes that 50% of the investment is in bonds and 50% in stocks, with rebalancing taking place at the end of each calendar. **PX3225** is a chart depicting the annual total returns for AGG and SPY investments from 2007 through June 2020. Tr. 631:20–632:7.

420. Dr. Bateman's recommended bond-equity combination generates a combined annual return of about 7% per year. His recommended bond-equity option provides a higher real rate of return for the Plaintiffs of about 4% as compared with the Moody's Rate real return of about 1.7%. Tr. 634:25–635:4; 635:19–636:2; 636:17–637:2.

421. The most appropriate *Prudent Investor Rate* according to Dr. Bateman is the bond-equity combination which yields a real rate of return for the farmers of 3.5% to 4% given individual growth rates near 7% to 7.5%. The other option is utilization of the Moody's Rate (**PX3258**)

which, in Dr. Bateman's opinion, does not satisfy the *Prudent Investor Rate* in today's world, as the real rate of return of 1.7% is not appropriate and reflective of a level of risk aversion that is unrealistic for prudent investors. Tr. 636:17–637:2.

422. The Court finds that Dr. Bateman's recommended AGG/SPY interest rates are appropriate for delay damages and consistent with the *Prudent Investor Rate*.

423. The just compensation due the Phase II Bellwether Plaintiffs for the MRRP flooding and losses found by the Court, exclusive of any just compensation due for the taking of a permanent flowage easement, and including interest compounded quarterly at the bond/equity rates, are set forth in **PX3247-A** (Chart), as calculated by Dr. Bateman. Tr. 712:11-15; 713:4-21.

424. Plaintiffs' losses calculated through June 2020 using the AGG/SPY rates with interest compounded quarterly are as follows: Ideker Farms, \$9,217,984; Buffalo Hollow Farms, \$2,340,110; and Adkins, \$4,136,963. These figures are exclusive of any diminution in value for a permanent flowage easement. **PX3247-A**; Tr. 710:8-712:15.

425. The *per diem* interest using the AGG/SPY rates for Ideker Farms is \$2,008, for Buffalo Hollow it is \$481, and for Adkins the rate is \$864. Tr. 711:21–712:22; **PX3247-A**.

2. Dr. Bateman's Calculations Using the Moody's Rates

426. **PX3257-A, B, C, D** and **E** are charts summarizing all three Phase II Bellwether Plaintiff property losses, with the total and per diem interest calculated using Moody's Aaa rates instead of the AGG/SPY returns compounded quarterly. Tr. 712:16-22.

427. **PX3258** is a chart showing the Moody's Aaa rates from 2007 through June 2020. Tr. 712:23-24.

428. The Plaintiffs' losses calculated through June 2020 using the Moody's rates with interest compounded quarterly are as follows: Ideker Farms, \$6,860,034; Buffalo Hollow Farms,

\$1,844,487; and Adkins, \$3,209,120. These figures are exclusive of any diminution in value for a permanent flowage easement. **PX3257-A**; Tr. 712:16–713:15.

429. The *per diem* interest using the Moody's rates for Ideker Farms is \$975; for Buffalo Hollow, \$264; and for Adkins, \$469. **PX3257-A**; Tr. 713:16-17.

3. **Dr. Sunding's Suggested Rebuttal Interest Rate Is Inappropriate**

430. Dr. Sunding has never used the *Prudent Investor Rule* and he offered no opinions on the Rule. Tr. 2908:12-14; 2911:12-19 (Sunding).

431. Dr. Sunding's suggested interest rate (proffered as a rebuttal witness only), using the one-year Treasury bill (Tr. 2911:20-24 (Sunding)), does not satisfy the *Prudent Investor Rule*. Tr. 3275:18-24 (Bateman).

432. Dr. Sunding's suggested rate results in a real return of a negative 2.5 to 3.0% given that corn and soybean farmers' operating costs increased at a rate of 3.5 to 4% during the 2007-2020 period. His low rate is completely inappropriate. Tr. 3275:25–3276:5 (Bateman).

433. During the period from 2007 through 2019, the U.S. corn farmer experienced cost inflation averaging 3.5% (USDA/ERS). A farmer's seed, fertilizer, chemicals, fuel and other operating costs increased from \$224.84 per acre in 2007 to \$339.62 per acre in 2019, or 3.5% per year for the 12 years. Tr. 634:3-10; 635:5-13 (Bateman).

434. The one-year U.S. Treasury bill rate does not satisfy the *Prudent Investor Rule*. As of June 30, 2020, that rate was .17% which is extraordinarily low because of the pandemic. The one-year Treasury rate during most of the period varied between 0.71% and 1.1%. The problem with such a low rate is that the farmers, if given this rate, would experience a -2.5% annual real return (loss) when inflation was considered due to the inflationary rate farmers are experiencing in their farming operations over this period of time. Tr. 633:9-23 (Bateman); Tr. 2912:15-18 (Sunding).

435. To delay payment 14 years and then to offer the Plaintiffs something that is 3% below the increase in cost they had during the same period of time does not make sense. Tr. 3276:6-9 (Bateman).

VII. DR. BABCOCK'S METHODOLOGY AND VALUING OF THE PERMANENT FLOWAGE EASEMENT

436. The federal actions pursuant to the MRRP took a Permanent Flowage Easement from each of the Plaintiffs. Tr. 33:12-19.

A. Dr. Bruce Babcock's Qualifications

437. Dr. Babcock is an agricultural economist and is currently a Professor of Public Policy at the University of California at Riverside. Tr. 1002:9-15 (Babcock).

438. Dr. Babcock received his Bachelor's Degree from the University of California at Davis in 1980, a Master's Degree from the University of California at Davis in 1981, and his Ph.D. in Agricultural and Resource Economics from the University of California at Berkeley in 1987. Tr. 1003:19–1004:4 (Babcock). For most of his career, Dr. Babcock held various roles at Iowa State University; most notably, he was the director of a public policy research center called The Center for Agricultural and Rural Development, for which he was the director from 1998 to 2011. Tr. 1002:16-22 (Babcock); **PX3350** (Dr. Babcock's CV).

439. In his career, Dr. Babcock has also consulted in evaluating damages and losses in a number of cases dealing with farm level losses and commodity markets. Tr. 1003:6-10 (Babcock). In addition to his extensive litigation and trial testimony experience, Dr. Babcock has also been recognized by being called before Congressional Committees to hear testimony about agricultural policy in the United States and trade policy around the world. Tr. 1006:9-14 (Babcock). Dr. Babcock has consulted widely with Federal Government agencies, including but not limited to the USDA, EPA, and DOE. Tr. 1006:20-25 (Babcock).

440. Additionally, while in Iowa, Dr. Babcock and his wife owned some Iowa farms that grew corn and soybeans jointly with a crop-share tenant farmer, which puts him in a position to know about the crops that the Plaintiff farmers grow. Tr. 1003:11-15 (Babcock).

B. Dr. Babcock's Valuing of the Permanent Flowage Easements

441. Dr. Babcock's testimony and opinions are credible and reliable in valuing the Plaintiffs' Permanent Flowage Easements.

442. Dr. Babcock was engaged to render an opinion as to whether the MRRP permanent flowage easements that were imposed by the Government over the Phase II Tracts have diminished the fair market values of the real property interest in fee of the Phase II Plaintiffs in the Phase II Tracts. Tr. 1001:1-10 (Babcock).

443. More specifically, Dr. Babcock was engaged to determine whether the fair market values of the Phase II Tracts as of December 31, 2014, which is the Court's cutoff date of flooding for which the Plaintiffs could assert claims for takings in their lawsuit, whether those fair market values had diminished due to the Government's taking of the permanent flowage easements from the MRRP. Tr. 1001:11-18 (Babcock).

444. Then, if the fair market values have decreased, Dr. Babcock's task was to determine how much of a decrease, how much the fair market values will have been diminished by the permanent flowage easements, and the difference would be equal to the just compensation due to the Phase II Plaintiffs from the Government for those permanent flowage easement losses due to the MRRP. Tr. 1001:19–1002:3 (Babcock).

445. Dr. Babcock's opinion is that a hypothetical buyer of the Phase II Tracts would have been aware of the ongoing pattern of the MRRP flooding that would have negatively impacted the amounts that the buyer would have been willing to pay on that day, December 31, 2014, for the tracts. The diminution of the fair market values of the Phase II Tracts factor in the

hypothetical buyer's concern over the river's MRRP altered flooding patterns. Tr. 1011:8-19 (Babcock).

446. Dr. Babcock interviewed the Plaintiffs and owners of the three Phase II Tracts. Dr. Babcock talked to them about their farm operations, their knowledge of the river, and what it was like to farm along the river. Tr. 1018:4-10 (Babcock).

447. The Phase II Plaintiffs told Dr. Babcock that farming has become much more difficult after the Corps' implementation of the MRRP. Tr. 1018:10-12 (Babcock). The Phase II Plaintiffs told Dr. Babcock that the river stays high longer than it used to so that their farmland drains more slowly and is more often affected by seepage than it was before the MRRP. Tr. 1018:13-16 (Babcock).

448. The important factor that determines farmland prices is the net income or profits that can be generated from the land. Differences in net income between two pieces of farmland primarily are determined by differences in the productivity of that land, or production per acre, which is called yield per acre. Tr. 1019:13-21 (Babcock).

449. Yield per acre, or production per acre, is negatively impacted by flooding. Tr. 1019:23–1020:6 (Babcock). Flooding leads to a lower net income for which the farmer cannot generate the level of profits that they would have without the flooding and so that ultimately reduces the amount a willing buyer will pay for a piece of land. Tr. 1020:14-20 (Babcock).

450. If a piece of farmland becomes less productive, it has lower value and so a willing buyer will not pay as much for the land. Tr. 1020:21-24 (Babcock).

451. Dr. Babcock's approach was to use actual farmland sales data in the Missouri River Basin, both before and after the MRRP could have affected farmland price. Tr. 1026:2-6 (Babcock).

452. Dr. Babcock used a standard statistical model based upon data to test the hypothesis to determine if the MRRP affected farmland prices over time. Tr. 1027:1-7 (Babcock) This is a standard economic metric statistical approach to understanding the effect of an event. Tr. 1064:10-17 (Babcock)..

453. There are important factors that impact all farms that grow the same crops. There are also farm-specific factors. Dr. Babcock's analysis accounted for both sets of factors. Tr. 1031:14-24, 1033:13-18 (Babcock).

454. According to Dr. Babcock, the best way of capturing the net effect of the economic factors is to simply obtain an index of farmland prices so that the aggregate net impact of all the changes in the economic factors will be captured by the average farmland price in a region that is not influenced by the MRRP. Dr. Babcock used the Federal Reserve Bank of Chicago which publishes an average Iowa farmland price each year. Tr. 1034:5-16, 1035:16-22 (Babcock); **PX3386** (farmland price data).

455. Dr. Babcock wanted to perform a check to see if there wasn't some other factor other than the MRRP that was not included in his model that would account for the diminution in fair market value of Missouri River Basin bottomland. So Dr. Babcock asked the appraisers to obtain additional data not in the Missouri River Basin, not affected by the MRRP, to be able to check and see if, in fact, there could be some other factor other than the MRRP that caused his statistical model to perhaps erroneously conclude that it was the MRRP that diminished farmland prices. Tr. 1038:8–1039:13 (Babcock).

456. Dr. Babcock relied on Leo Smith and Tim Keller, Plaintiffs' appraisers, to collect land sales data. Dr. Babcock asked for and obtained all river bottom sales in the Missouri and

Nishnabotna from 1998 to 2019. Tr. 1039:14-19, 1048:3-8 (Babcock); **PX3387** and **PX3388** (Nishnabotna graphs); **PX3389** (location of sales data plots).

457. Dr. Babcock testified that local appraisers are preferable to gather the land sales data and they have local knowledge of the types of transactions that are needed to be able to test the hypothesis. Tr. 1026:18-21 (Babcock). Dr. Babcock did not take a random sample, but rather obtained the population of the land sales data that were arm's length commercial agricultural transactions. Dr. Babcock ruled out sales where the price was dramatically inflated by development. Tr. 1048:9-19 (Babcock).

458. Missouri River bottomlands, sometimes referred to as the Missouri River Basin or bottomland is a commonly accepted and used term that means farmland from the bottom of the bluff to the Iowa side of the Missouri River. The appraisers knew what was meant and collected the data according to Dr. Babcock's instruction. Tr. 1048:20–1049:3 (Babcock).

459. The results of Dr. Babcock's regression analysis indicate that the Missouri River Basin farmland prices would have been, on average, 25.7% higher without the MRRP. Tr. 1055:13-16 (Babcock); **PX3389** (sales data plots); **PX3356** (model results chart); **PX3390-PX3392** (model results graphs).

460. Prior to submitting his rebuttal report, Leo Smith contacted Dr. Babcock and told him that he had erroneously included three land sales in the Missouri River Basin that upon reflection and reanalysis, did not belong there. When Dr. Babcock eliminated the three observations that Leo Smith told him to eliminate, it increased the average diminution in value from 25.7% to 26.9% which served to validate Dr. Babcock's model. Tr. 1059:20–1060:10 (Babcock).

461. Dr. Babcock opines that the implementation of the MRRP decreased the value of affected farmland located in the Missouri River Basin. The average diminution in value of the Missouri River Basin is 26.9%. Tr. 1070:10-15 (Babcock). Dr. Babcock's regression model results are the average effect of the MRRP on all Missouri River bottomland. Tr. 1065:5-10 (Babcock).

462. Dr. Babcock did a check of the robustness of his model, as there is uncertainty about when buyers and sellers became aware that the MRRP had, in fact, changed the flooding patterns of the river. Tr. 1060:14-20 (Babcock); **PX3357-A** (robustness check).

463. Missouri River bottomland is subject to flooding so buyers and sellers of farmland that saw some flooding in 2007, may not know from one observation as to whether this was an abnormal flooding event or not. Tr. 1060:21–1061:5 (Babcock). To determine if the flooding is atypical, it takes some time of observations of the river. So the first year of the flood damage was 2007, but it's not likely that buyers and sellers were aware the MRRP had, in fact, changed the river. Tr. 1061:5-12 (Babcock).

464. Continued flooding through the late 2010 time period clearly would have increased the knowledge that something had changed among local farmers and outside buyers. Tr. 1061:13-16 (Babcock). When he first talked to the Plaintiff farmers, they told him that they first became aware that something had changed on the river in the first decade in the late 2000s. And they all said they were aware of the changed river by 2011. Tr. 1061:17–1062:4 (Babcock).

465. The fact that the highest diminution occurs in 2010 is statistical evidence that, in fact, that was the correct year of the diminution in value for his statistical model. Tr. 1063:24–1064:6 (Babcock).

466. In his analysis, Dr. Babcock relied upon information provided to him by the Phase II Plaintiffs, Dr. Mays' data, calculations and report, as well as the Phase I testimony of Dr. Christensen, Dr. Hromadka, and Judge Firestone's Phase I Trial Opinion. Tr. 1018:24–1019:5.

467. Dr. Mays concludes, based on the actual MRRP of the Phase II Tracts found by the Court that occurred in 2007 to 2014 as part of the Phase I Trial, that the MRRP has caused a change in the flooding patterns of the river, a pattern of flooding which would continue beyond 2014 because of the reason for the change in flooding patterns, the MRRP is still ongoing. Tr. 1010:25–1011:7; 1073:9-17 (Babcock).

468. Although nothing in Dr. Babcock's regression analysis relies upon Dr. Mays' opinions or analysis, Dr. Babcock relies upon Dr. Mays' opinion that the MRRP caused an increase in flooding patterns that affected Missouri River farmland and, in particular, the three Phase II Plaintiffs. Tr. 1010:19-24; 1066:7-17 (Babcock). The fact that Dr. Babcock found in his statistical analysis a diminution in value is consistent and corroborative of Dr. Mays' opinion that the Missouri River has changed and it has made farming less profitable in the Missouri River Basin. Tr. 1066:23–1067:2 (Babcock).

469. Dr. Babcock used his model results showing the average effect of the MRRP on Missouri River bottomland and translated those results into a tract-specific diminution in value. Tr. 1065:13-15 (Babcock). Dr. Babcock relied upon Judge Firestone's March 13, 2018 Phase I Trial Opinion, wherein the Court found the three Phase II Plaintiffs had a greater than average impact of the MRRP. Tr. 1067:9–1068:4 (Babcock); **PX3358, PX3358-A** (Plaintiff flood years).

470. The three Phase II Plaintiffs were impacted more by the MRRP flooding than the average. Dr. Babcock modestly increased the percent diminution in value from the 25.7% from the original report (or the 26.9% from the rebuttal report) to 27.5% for the Adkins Phase II Tract

and 30% for the Buffalo Hollow Farms and Ideker Farms Phase II Tracts. Tr. 1069:10-20 (Babcock).

471. The estimate of the diminishment in fair market value of the Phase II Tracts is conservative as confirmed by the analysis of both Dr. Babcock and Dr. Sunding. Tr. 1069:21-23 (Babcock).

472. The appraised value of the 1,494.5 acres of farmland for the Ideker Phase II Tract is \$8,250 per acre on December 31, 2014. Tr. 1011:20-24 (Babcock). Dr. Babcock's opinion is this farmland would have been worth 30% more but for the MRRP. Thus, Dr. Babcock concludes that but for the MRRP, the Ideker Phase II Tract farmland would have been worth \$10,725 per acre. Tr. 1011:25–1012:4 (Babcock). The total diminution in the fair market value of the Ideker Phase II Tract due to the MRRP imposing a permanent flowage easement is a permanent loss of \$3,698,887. Tr. 1012:5-10 (Babcock).

473. The appraised value of the 778.72 acres of bottomland farm ground for the Buffalo Hollow Phase II Tract as of December 31, 2014, is \$8,000 per acre. Tr. 1012:11-15 (Babcock). The farmland would have been worth 30% more but for the MRRP. Thus, Dr. Babcock concludes that but for the MRRP, the Buffalo Hollow Phase II Tract farmland would have been worth \$10,240 per acre. Tr. 1012:15-19 (Babcock). The total diminution in the fair market value of the Buffalo Hollow Phase II Tract due to the MRRP imposing a permanent flowage easement is a permanent loss of \$1,868,928. Tr. 1012:17-25 (Babcock).

474. Dr. Babcock was provided four appraisals with respect to the Adkins Phase II Tract. Dr. Babcock's analysis and opinions apply only to two of the appraisals, the two appraisals for the farmland inside and outside the levee. Dr. Babcock's analyses and opinions do not apply to the appraisals for residential and the development tracts. Tr. 1013:1-8, 1014:3-8 (Babcock).

475. The appraised value of the 754.5 acres of bottomland farm ground inside the levee on the Adkins Phase II Tract as of December 31, 2014, is \$6,700 per acre. Tr. 1013:9-12 (Babcock). This farmland would have been worth 27.5% more or \$8,542. The total loss value of these acres is \$1,390,125. Tr. 1013:13-15 (Babcock).

476. The appraised value of the 221.7 acres of bottomland farm ground outside the levee on the Adkins Phase II Tract as of December 31, 2014, is \$2,300 per acre. Tr. 1013:16-19 (Babcock). This farmland would have been worth 27.5% more or \$2,932.50. The total loss value of these acres is \$140,143 but for the MRRP. Tr. 1013:20-23 (Babcock). The total diminution in the fair market value of the Adkins Phase II Tract due to the MRRP imposing a permanent flowage easement is a permanent loss of \$1,530,268. Tr. 1013:24–1014:2 (Babcock).

477. **PX3360** is a summary of the permanent flowage easement calculations.

478. In evaluating the MRRP permanent flowage easements taken as of December 31, 2014, Dr. Babcock was aware that the MRRP had not been terminated. Tr. 1073:18-20 (Babcock).

479. Buyers would have been willing to pay less because of a concern that the flowage easement would substantially lessen the productivity of the tracts due to the inevitably recurring flooding reflected by the MRRP altered flooding patterns of the river for as long as the MRRP was not terminated. Tr. 1074:1-7 (Babcock).

480. It is Dr. Babcock's opinion that due to the MRRP induced flowage easements taken over the Phase II Tracts that the fair market value of those Tracts as of December 31, 2014, were substantially diminished in the amounts. Tr. 1074:8-13 (Babcock).

481. The amounts of the diminishment of fair market value of the Phase II Tracts caused by the MRRP permanent flowage easements that were taken represent the just compensation that is due to the Plaintiffs for those permanent flowage easement losses. Tr. 1074:13-18 (Babcock).

482. The total Phase II losses without interest adding Dr. Bateman's estimate are presented in **PX3364** (Chart); Tr. 1075:17-19; 1076:15-23 (Babcock).

483. **PX3365** (Chart) is the total Phase II losses with interest using the Agg/SPY interest compounded quarterly. Tr. 1077:3-6, 10-17 (Babcock).

484. **PX3365-A** (Chart) are the total Phase II losses with interest using the Moody's Aaa corporate Bond Index, interest compounded quarterly. Tr. 1077:18–1078:3 (Babcock).

485. Dr. Babcock also concluded that there has been no significant change in Basin bottomland fair market value for a permanent flowage easement under the MRRP beyond December 31, 2014. In other words, Dr. Babcock confirmed the value of the permanent flowage easement is the same today as it was on December 31, 2014. There is no evidence before the Court to the contrary. Tr. 1074:19–1075:9 (Babcock). This is consistent with the Plaintiffs' testimony as well. Tr. 71:2-3 (Adkins); 162:25–163:11 (Schneider).

C. Dr. Sunding's Rebuttal Opinions of Dr. Babcock Are Unreliable and Do Not Control

486. Prior to this case, Dr. Sunding had no experience in valuing permanent flowage easements or quantifying economic losses for flowage easements. Tr. 2861:7-13 (Sunding).

487. When Dr. Sunding ran Dr. Babcock's model using the same data, he was able to replicate the results and get the same number (25.7%), which confirmed Dr. Babcock's model. Tr. 2867:3-10 (Sunding); 3181:6-14; 3188:1-4 (Babcock).

488. Dr. Sunding criticizes Dr. Babcock for not running a difference-in-difference model, however, when Dr. Sunding ran a difference-in-difference model using Dr. Babcock's data, the diminution in value calculation went up from 25.7% to 38%. Tr. 2869:19–2870:14 (Sunding); 3179:24–3183:25 (Babcock).

489. Dr. Sunding did not analyze the question as to whether a willing buyer, as of December 31, 2014, would pay less for farmland in the Missouri River Basin. Tr. 2871:11-21 (Sunding).

490. Dr. Sunding admitted that a 12% average yield loss as calculated by Dr. Evans would equate to a much greater than 12% loss in net income. Tr. 2879:12-19 (Sunding). In his rebuttal testimony, Dr. Babcock demonstrated that even using Dr. Evans' flawed and under-predicting model that a 12% production loss leads to a 27% reduction in fair market value. This also confirms Dr. Babcock's analysis and results. Tr. 2879:12-19 (Sunding); 3183:21–3188:8 (Babcock).

491. Dr. Babcock interviewed the Plaintiffs and relied upon their testimony, but Dr. Sunding did not. Tr. 2881:20-25 (Sunding).

492. Dr. Sunding, agreed that it is important to have observations both before and after the date of a treatment to effectively estimate the treatment effect. Tr. 2885:20–2887:8 (Sunding).

493. The main difference in the analyses is that Dr. Babcock used Missouri River bottomland for his model, and Dr. Sunding used the FEMA 500-year floodplain. Tr. 2895:20-24 (Sunding).

494. Dr. Sunding agrees that it is important to check to see whether the properties actually have any flood risk but in his analysis he excluded properties for which the Court found causation in Phase I. Tr. 2893:5-9; 2895:7-10 (Sunding). Under his analysis, Dr. Sunding intentionally excluded those properties that are outside the FEMA flood zone and, in effect, determined those properties had no flood risk under his analysis. Tr. 2895:11-19; 2899:10-23 (Sunding).

495. When Dr. Sunding's data is compared to Dr. Babcock's data, the importance of Dr. Sunding's exclusions of property outside the FEMA floodplain becomes apparent. Dr. Sunding excluded many properties outside of the FEMA floodplain for which the Court found causation in Phase I. This includes the property of KMJ Farms, Inc. (Brian and Kelly Johnson). Tr. 2896:1–2897:24 (Sunding), **PX3321-A** (Map). As a result, Dr. Sunding's analysis intentionally excludes many properties that not only have flood risk, but have actually experienced flooding due to the MRRP under the Court's Phase I Opinion. Tr. 2893:5-9, 2895:7-10 (Sunding). This is a fatal flaw in Dr. Sunding's analysis that renders his opinions and criticisms of Dr. Babcock unreliable.

496. Dr. Sunding did not use the Yellow Book in his critiques or criticisms of Dr. Babcock. Tr. 2905:7-9 (Sunding). Dr. Sunding approached his analysis like an economist and, in his professional experience, economists approach things differently than appraisers. Tr. 2905:10–2906:8 (Sunding). Dr. Sunding did not review the appraisals of Mr. Smith or Mr. Keller, and does not have an opinion about the approach taken by Plaintiffs' appraisers or the actual fair market value of the Phase II Tracts with the MRRP permanent flowage easements as of December 31, 2014. Tr. 2857:24–2858:5; 2904:14-17; 2906:9-19 (Sunding).

497. Dr. Sunding agrees with Plaintiffs' approach that the difference between the hypothetical before fair market value of the Phase II Tracts without the MRRP and the after fair market value of the Phase II Tracts with the MRRP permanent flowage easement as of December 31, 2014, is a simple mathematical calculation which is equivalent to the value of the permanent flowage easement. Tr. 2906:13–2907:7 (Sunding).

PROPOSED CONCLUSIONS OF LAW

I. FES WERE TAKEN BY THE CORPS' MRRP CHANGES

1. Property is taken where the interference with the owner's use and enjoyment of his property is such that a servitude is acquired to effectuate the authorized public purpose in question. *United States v. Dickinson*, 331 U.S. 745, 748-49 (1947).

2. In terms of a FE, where “land is not constantly but only at intervals overflowed, the fee may be permitted to remain in the owner, subject to an easement in the United States to overflow it with water as often as necessarily may result from the [Government’s actions for an authorized public purpose].” *United States v. Cress*, 243 U.S. 316, 329 (1917).

3. The taking of a FE can be found where the Government’s actions have and/or will intermittently subject the property to inevitably recurring flooding. *Id.*; *Ark. Game & Fish Comm’n v. United States*, 736 F.3d 1364, 1372 (Fed. Cir. 2013) (“*Ark. Game & Fish III*”); *Ridge Line, Inc. v. United States*, 346 F.3d 1346, 1357 (Fed. Cir. 2003).

4. A FE can be found where there has only been one flooding event to date, but the evidence indicates an intent to subject the property in the future in inevitably recurring flooding. *Quebedeaux v. United States*, 112 Fed. Cl. 317, 323-24 (2013).

5. The taking of a FE can occur where the Corps’ deviations in river management are adopted on a year-by-year basis, rather than as part of a single multi-year plan, where the deviations are designed to serve a single purpose and collectively cause inevitably recurring flooding and resulting injuries and losses. *Ideker Farms, Inc. v. United States*, 136 Fed. Cl. 654, 674 (2018) (“*Ideker I*”) (citing *Ark. Game & Fish III*, 736 F.3d at 1370).

6. Recurring flooding caused by deviations in management of river that contrasts markedly with historical flooding patterns can constitute a taking of a FE. *Ark. Game & Fish*

Comm’n v. United States, 568 U.S. 23, 29 (2012) (“*Ark. Game & Fish II*”) (citing *Ark. Game & Fish Comm’n v. United States*, 87 Fed. Cl. 594, 607-08 (2009) (“*Ark. Game & Fish I*”), *aff’d*, *Ark. Game & Fish III*, 736 F.3d 1364).

7. Even though property lies in a floodplain, a taking of a FE can be found where the deviations in river management result in flooding patterns that are not comparable to flooding patterns that occurred in any “previously recorded time span.” *Id.*

II. COURT CONCLUDED IN PHASE I THAT PLAINTIFFS HAVE ESTABLISHED THE ACTUAL CAUSATION ELEMENT OF THEIR CLAIMS

8. Where the deviations in river management are directed to a single purpose resulting in recurring intermittent flooding over a period of years, a compensable taking must be assessed in light of an invasion of that period of years, not individual single years. *Ark. Game & Fish III*, 736 F.3d at 1370.

9. To determine whether a taking has occurred, a court must consider (1) whether the injury was actually caused by government action (actual causation), (2) whether the resulting injuries and losses were foreseeable (foreseeability), and (3) whether those injuries and losses constituted a sufficiently severe invasion that it interfered with the landowner’s reasonable expectations as to the use of the land (element of appropriation). *Id.*

10. To prove a taking, the plaintiff must establish, *inter alia*, that the invasion was actually caused by the government-authorized action alleged. *Ridge Line*, 346 F.3d at 1355; *see also St. Bernard Par. Gov’t v. United States*, 887 F.3d 1354, 1362 (Fed Cir. 2018).

11. To establish causation, the plaintiff must show that a “chain of causation” existed between the government actions and the resulting injuries and losses for which the plaintiff is seeking just compensation. *See Cary v. United States*, 552 F.3d 1373, 1379-80 (Fed. Cir. 2009).

12. A series of physical events caused by the Government that occur over time, the combined/cumulative effects of which cause increased flooding, can constitute a taking where they occurred “in a natural order” without an intervening cause to break that chain. ***Id.* at 1378.**

13. A taking can occur where there is a series of deviations in river management for a single purpose causing flooding that would not have occurred but for or without those changes. ***Ideker I*, 136 Fed. Cl. at 674 (citing *Ark. Game & Fish III*, 736 F.3d at 1370).**

14. “For an injury to be a compensable taking, the court must determine that no break in the chain of causation existed between the suspected government authorized action and the injury.” ***Cary*, 552 F.3d at 1380.**

15. A chain of causation is not broken, allowing the Government to escape liability, simply because there is “an incidental intervening or contributing cause between [its] authorized action and the alleged injury.” ***Id.* at 1379-80; see also *Bostock v. Clayton County*, 140 S. Ct. 1731, 1739 (2020).**

16. A chain of actual causation is established by showing “what would have occurred if the government had not acted.” ***St. Bernard Par.*, 887 F.3d at 1362.** To establish causation the “plaintiff must show that in the ordinary course of events, absent government action, plaintiff would not have suffered the injury” or “what damage would have occurred without government action. ***Id.* at 1362-63.** This standard for determining actual causation by establishing a chain of actual causation is referred to as the “but for” standard or test. ***See Res. Inv., Inc. v. United States*, 85 Fed. Cl. 447, 521 (2009); *Banks v. United States*, 69 Fed. Cl. 206, 214 (2006).**

17. But-for causation “is established whenever a particular outcome would not have happened ‘but for’ the purported cause.” ***Bostock*, 140 S. Ct. at 1739.** “In other words, a but-for

test directs us to change one thing at a time and see if the outcome changes. If it does, we have found a but-for cause.” *Id.*

18. There can be “events [that] have multiple but-for causes,” such as in the case of a car accident where both the defendant and the plaintiff are at fault to some degree. *Id.* In that situation, the “defendant cannot avoid liability just by citing some other [contributing] factor. *Id.*

III. PLAINTIFFS HAVE ESTABLISHED REASONABLE INVESTMENT-BACKED EXPECTATIONS OF FLOODING FACTOR AS TO FLOODING OF PHASE II TRACTS FROM 2004 THROUGH 2014

19. One factor to be considered in determining whether there has been an appropriation are the Plaintiffs’ “reasonable investment-backed expectations” of flooding (“RIBEF”). *Ark. Game & Fish II*, 568 U.S. at 38-39 (quoting *Palazzolo v. Rhode Island*, 553 U.S. 606, 618 (2001)).

20. Flooding is unexpected in the context of the RIBEF factor where the flooding that damaged the property interests in question is flooding that the property owner would not have “reasonably expected to experience in the natural course of things.” *Ark. Game & Fish III*, 736 F.3d at 1375. Was “the asserted intrusion . . . within a range that the property owner could have reasonably expected to experience in the natural course of things[?]” *Id.*

21. The RIBEF factor is satisfied where the property owner has a reasonable expectation of being “free” from the alleged government-induced flooding in question given the existing flooding patterns of the river before the government actions alleged. *Id.*

22. The RIBEF factor is satisfied where the Government’s actions for a public purpose “interfere with interests that were sufficiently bound up with the reasonable expectations of the claimant.” *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124-25 (1978).

23. In determining whether there has been a taking, the “point is not that there was flooding before the deviations; the point is that after the deviations began the flooding lasted for significantly longer periods of time and had much more serious consequences than the flooding of the pre-deviation period.” *Ark. Game & Fish III*, 736 F.3d at 1374.

24. A change in the flooding pattern of a river can interfere with a property owner’s reasonable expectations as to the use of his property on which he relied for investing in that property. *Id.* at 1370, 1374.

IV. THE MEASURE OF JUST COMPENSATION

25. Just compensation must be paid in an amount that puts property owner in as good a position pecuniarily as he would have occupied if payment had been made. *Kirby Forest Indus., Inc. v. United States*, 467 U.S. 1, 10 (1984).

26. The Takings Clause protects both real/personal property interests. *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1003 (1984); *Dickinson*, 331 U.S. at 750; *Huntleigh USA Corp. v. United States*, 525 F.3d 1370, 1377-78 (Fed. Cir. 2008); *Am. Pelagic Fishing Co. v. United States*, 379 F.3d 1363, 1371 (Fed. Cir. 2004).

27. If the Government takes real/personal property interests by flooding, it must pay the property owner just compensation for all the injuries/losses that would *not* have occurred but for that flooding. *Ark. Game & Fish II*, 568 U.S. at 31; *Ridge Line*, 346 F.3d at 1359.

28. Just compensation must be for all that it “inevitably washes away as a result of that flooding.” *Dickinson*, 331 U.S. at 750. The Fifth Amendment guarantees that just compensation be comprehensive and encompass “all elements” of compensation. *Jacobs v. United States*, 290 U.S. 13, 16-17 (1933).

29. Just compensation must be for all injuries/losses resulting from the government's actions "for the period during which the taking was effective." *Ark. Game & Fish II*, 568 U.S. at 33 (quoting *First English Evangelical Lutheran Church of Glendale v. Cty. of Los Angeles*, 482 U.S. 304, 321(1987)). Likewise, a property owner is entitled to just compensation for all injuries/losses attributable to the taking, "past, present and prospective." *Ridge Line*, 346 F.3d at 1359 (quoting *Dickinson*, 152 F.2d at 867, aff'd, 331 U.S. 745 (1947)).

V. FES ARE "PERMANENT" FOR THE PURPOSE OF DETERMINING JUST COMPENSATION WHERE UNDERLYING GOVERNMENT ACTIONS HAVE BEEN TERMINATED AT TIME OF TRIAL

30. "Temporary takings are not different in kind from permanent takings – a temporary taking simply occurs when what would otherwise be a permanent taking is temporally cut short." *Am. Pelagic Fishing*, 379 F.3d at 1371 n.11.

31. The essential distinction between a permanent FE ("PFE") and a temporary FE ("TFE") is simply that a TFE has a finite start and ending, while a PFE has a finite start but not a finite ending. *Id.* (quoting *Wyatt v. United States*, 271 F.3d 1090, 1097 n.6 (Fed. Cir. 2001)).

32. "The duration of a physical taking pertains, not to the issue of whether a taking has occurred, but to the determination of just compensation." *Otay Mesa Prop., L.P. v. United States*, 670 F.3d 1358, 1363 (Fed. Cir. 2012) (citing *Skip Kirchorfer, Inc. v. United States*, 6 F.3d 1573, 1582-83 (Fed. Cir. 1993).

33. Only after the taking a FE is found as a matter of liability, does the trial court address this distinction as a just compensation issue. *United States v. Causby*, 328 U.S. 256, 267-68 (1946); *Otay Mesa*, 670 F.3d at 1363; *Skip Kirchorfer*, 6 F.3d at 1583.

34. “[C]ourts use different methods to determine just compensation owed, depending on the temporal classification of a taking.” *Otay Mesa*, 670 F.3d at 1363 (citing *Skip Kirchdorfer*, 6 F.3d at 1582-83).

35. In the sense of an easement, permanent does not mean forever. *Id.* at 1373. “Thus, the government has been held to have permanently taken property, despite the fact that all takings are temporary, in the sense that the government can always change its mind at a later time.” *Id.* (internal quotation marks and citations omitted).

36. In classifying an easement as permanent or temporary for purpose of calculating just compensation, the legal standard is straightforward – does the FE found still exist at the time just compensation is awarded or has it abated. *Ark. Game & Fish I*, 87 Fed. Cl. at 619-20.

37. “[The] abandonment of a permanent taking creates a temporary taking, thereby affecting the compensation due.” *Otay Mesa*, 670 F.3d at 1366. In determining whether a FE is permanent or temporary, the question is whether the easement still exists or has terminated at the time just compensation is awarded or in other words, at the time of trial. *Id.* at 1364.

VI. PERMANENT FLOWAGE EASEMENTS VALUED USING BEFORE AND AFTER METHOD

38. The conventional method for valuing the just compensation for the taking of a PFE is the “before-and-after method” to determine the diminution in fair market value (“DIFMV”) of the property due to the encumbrance of the PFE. *Otay Mesa*, 670 F.3d at 1364.

39. The value of a PFE is the amount by which the hypothetical FMV of the property interest without the easement (the before-easement scenario) exceeds the actual FMV of that property interest with the easement (the after-easement scenario). *Kirby Forest Indus.*, 467 U.S. at 10; *Rasmuson*, 807 F.3d at 1345.

40. The value of a PFE is the DIFMV of the real property interest itself, not for the injury to that interest. *United States v. Miller*, 317 U.S. 369, 373-75 (1943).

VII. DATE FOR VALUING THE PERMANENT FES

41. The valuation date of a PFE loss is the date of the taking of the property interest in question. *Ark. Game & Fish I*, 87 Fed. Cl. at 645; *see also Kirby Forest Indus.*, 467 U.S. at 10 (citing *United States v. 564.54 Acres of Land*, 441 U.S. 506, 511-13 (1979)); *see also United States v. Clarke*, 445 U.S. 253, 258 (1980).

42. Where the taking of the FE is due to a series of physical events over a period of time, the takings date for valuing is the date of accrual, applying the *Dickinson* standard. *Cooper v. United States*, 827 F.2d 762, 764 (Fed. Cir. 1987) (citing *Dickinson*, 331 U.S. at 748)); *see also Ark. Game & Fish I*, 87 Fed. Cl. at 645.

43. Where the “source of the entire claim . . . is not a single event, [but] is continuous,” [a claim does not arise] until the situation becomes stabilized” and a situation is stabilized where the “consequences of inundation have so manifested themselves that a final account may be struck.” *Dickinson*, 331 U.S. at 748-49.

44. Under the stabilization doctrine of accrual enunciated in *Dickinson*, a taking accrues when all the events which fix the Government’s alleged liability have occurred and the harmed party knows or should have known of their existence. *Northwest La. Fish & Game Pres. Comm’n v. United States*, 446 F.3d 1285, 1290 (Fed. Cir. 2006).

45. The *Dickinson* standard controls the determination of the accrual date of a claim for the taking of a FE “because when a public project gradually results in cumulative damage to private property over a long period of time, it may be difficult to determine the precise date on

which the takings claim accrued.” *Mildenberger v. United States*, 643 F.3d 938, 945-46 (Fed. Cir. 2011) (citing *Dickinson*, 331 U.S. at 749).

46. “The point at which the taking becomes sufficiently certain to give rise to a claim for compensation varies in each case.” *Cooper*, 827 F.2d at 764.

47. Under the *Dickinson* standard the date of accrual is when did the injuries and losses become sufficiently stabilized so the property owner could determine the extent of those injuries and losses. *Cooper*, 827 F.2d at 764.

48. Under the *Dickinson* standard, a taking by a series of physical events does not accrue “as soon as [the property owner’s] land is invaded,” because of the “uncertainty of the damage[s]” at that point in time that would ultimately result from the flooding in question. *Dickinson*, 331 U.S. at 749.

49. “[T]he precise nature of the takings claim, including whether it is permanent or temporary, may be unknown when it accrues.” *Caldwell v. United States*, 391 F.3d 1226, 1234 (Fed. Cir. 2004).

50. In valuing a PFE, it is not when the FE was taken, but when the extent of the loss from that taking is ascertainable. *Dickinson*, 331 U.S. at 749; *Cooper*, 827 F.2d at 764.

VIII. PLAINTIFFS’ BURDEN OF PROOF IN ESTABLISHING JUST COMPENSATION

51. Just compensation cannot be reduced to a formula or based upon inexorable rules. *United States v. Cors*, 337 U.S. 325, 332 (1949); *United States v. Toronto, Hamilton & Buffalo Navigation Co.*, 338 U.S. 396, 402 (1949); *Georgia-Pacific Corp. v. United States*, 226 Ct. Cl. 95, 106 (Ct. Cl. 1980).

52. There is no one approved approach for determining what injuries and losses are compensable; rather, the determination must be based on the particular facts of each case. *Hendricks v. United States*, 14 Cl. Ct. 143, 149 (1987).

53. The trial court has considerable discretion in determining the methodology to be used in determining just compensation. *Innovair Aviation, Ltd. v. United States*, 82 Fed. Cl. 567, 568 (2007). The court's discretion must be grounded in the actual damage suffered and in the equitable principles of fairness and equity. *Houser v. United States*, 12 Cl. Ct. 454. (1987).

54. Just compensation is based as much upon the basic equitable principles of fairness as it is upon technical concepts of property law. *United States v. Fuller*, 409 U.S. 488, 490 (1973).

55. Just compensation does not require proof of the "precise amount" due, but only a "reasonable approximation." *Ark. Game & Fish III*, 736 F.3d at 1379. That "requires more than a guess, but less than absolute exactness." *Precision Pine & Timber Inc. v. United States*, 596 F.3d 817, 833 (Fed. Cir. 2003). "All that is required is such reasonable certainty that damages may not be based wholly upon speculation . . . [but] estimated with a fair degree of accuracy." *Huntley v. United States*, 135 F. Supp. 542, 546 (Ct. Cl. 1955).

IX. GOVERNMENT WAIVED AFFIRMATIVE DEFENSE OF SETOFF, ALTERNATIVELY DID NOT PROVE IT

56. Under **RCFC 8(c)(1)**, a defendant must affirmatively plead an affirmative defense, the "purpose of which is to give the opposing party notice of the affirmative defense and a chance to respond." *Shell Oil Co. v. United States*, 896 F.3d 1299, 1315-16 (Fed. Cir. 2018).

57. The failure to raise an affirmative defense may result in waiver. *Shell Oil Co. v. United States*, 123 Fed. Cl. 707, 718-19 (2015), *aff'd*, 896 F.3d 1299 (Fed Cir. 2018).

58. Courts have been reluctant to permit affirmative defenses to proceed after significant case activity “such as a trial or discovery, has concluded because the plaintiffs would be unfairly prejudiced.” *Shell Oil*, **123 Fed. Cl. at 718** (internal quotations and citation omitted).

59. Waiver has been approved under the unfair surprise and prejudice standard where the Government had “‘ample opportunity to broaden the scope of the litigation ... but chose not do so’ in a timely fashion.” *Shell Oil*, **896 F.3d at 1315** (quoting *Am. Airlines, Inc. v. United States*, **551 F.3d 1294, 1306** (Fed. Cir. 2008)).

60. Waiver is more likely to be found where a party fails to offer any reasonable explanation for not attempt to comply with **Rule 8(c)**. *Shell Oil*, **123 Fed. Cl. at 717**.

61. Under collateral source rule, the defendant is not entitled to a setoff for benefits received by the plaintiff, e.g. insurance benefits, reducing the damages owed by defendant. See *LaSalle Talman Bank, F.S.B. v. United States*, **317 F.3d 1363, 1372** (Fed. Cir. 2003).

62. The proponent has the burden of proving at trial an affirmative defense. *Long Island Sav. Bank, FSB v. United States*, **503 F.3d 1234, 1252** (Fed. Cir. 2007).

X. PLAINTIFFS ARE ENTITLED TO COMPOUND INTEREST FROM DATE WHEN JUST COMPENSATION SHOULD HAVE BEEN PAID

63. Any delay in payment of [] just compensation [“delay damages”] entitles the property owner “to interest thereon sufficient to ensure that he is placed in as good a position pecuniarily as he would have occupied if the payment had coincided with the appropriation.” *Tech. Coll. of the Low Country v. United States*, **147 Fed. Cl. 364, 367** (2020) (quoting *Kirby Forest Indus.*, **467 U.S. at 10**).

64. In a taking involving an award of “delay damages” as just compensation, the Court of Federal Claims has recognized that the proper measure is the employment of the Prudent Investor Rule (“PIR”). *Id.*; *Hardy v. United States*, **138 Fed. Cl. 344, 349** (2018).

65. “[T]he [PIR] is an inherently objective inquiry that applies uniformly to all plaintiffs.” *Hardy*, 138 Fed. Cl. at 350. The PIR “relies on the experiences of a hypothetical reasonably prudent person rather than a particular plaintiff.” *Technical College*, 147 Fed. Cl. at 367.

66. The PIR gauges “how a reasonably prudent person would have invested the funds owed by the government to produce a reasonable return while maintaining safety of principal.” *Sears v. United States*, 124 Fed. Cl. 730, 734 (2016) (citation omitted).

67. As a component of the interest to be paid under the PIR, the rule accounts for the hypothetical investor’s loss of investment opportunities as a fundamental component of delay damages. *Hardy*, 138 Fed. Cl. at 350.

68. Distinguishing between direct and inverse condemnation, the “consensus” that Moody not DTA rate is the best gauge of the PIR. *Technical College*, 147 Fed. Cl. at 370.

69. Because no prudent commercially reasonable investor would invest at simple interest, interest awarded should be compounded in the payment of just compensation. *Id.*

POST-TRIAL BRIEF

Plaintiffs will address herein the disputed Phase II issues and explain how they should be resolved by applying their Proposed Conclusions and Findings. They will *not* address the liability issues that were resolved in Phase I except to the extent the Government sought in Phase II to challenge the Court’s Phase I liability ruling of causation.

Liability Issues

Plaintiffs have the burden to prove by a preponderance of the evidence the liability elements of their claims: (1) actual causation, (2) foreseeability, and (3) appropriation. *Ark. Game & Fish III*, 736 F.3d at 1370. The Court ruled in Phase I that Plaintiffs had established the elements of causation and foreseeability. *Ideker I*, 136 Fed. Cl. at 761-62. The Court did not rule

that Plaintiffs had satisfied the element of appropriation. But, in concluding that they had satisfied the “severity” factor, it necessarily ruled preliminarily, subject to its consideration of the reasonable investment-backed expectations of flooding (“RIBEF”) appropriation factor in Phase II, that Plaintiffs had otherwise satisfied that element.⁴

Under the *Ridge Line* test for determining the appropriation element, aka the tort-taking inquiry, a taking can be found by considering the “nature and magnitude of the government action.” *Ridge Line*, 346 F.3d at 1355. “Even where the effects of the government action are predictable, to constitute a taking, an invasion must (1) appropriate a benefit to the government at the expense of the property owner, *or* (2) at least preempt the owners right to enjoy his property for an extended period of time, rather than merely inflict an injury that reduces its value. *Id.* (emphasis added). Under either alternative and given Plaintiffs’ RIBEF, the MRRP flooding found by the Court in Phase I and the resulting injuries and losses clearly did not constitute a tort, but an (1) appropriation for the benefit of the Government that (2) preempted the Plaintiffs’ rights to use and enjoy their property.

Given the Phase I rulings, there are only two *liability* issues remaining for determination in Phase II: (1) whether the MRRP flooding found in Phase I constitute the taking of FEs; and (2) whether the Plaintiffs have satisfied the RIBEF appropriation factor, which Plaintiffs address below. Plaintiffs will also address the liability element of causation, even though the Court has

⁴ Plaintiffs assumed for purposes of Phase II that the Court was treating “severity” as the element of appropriation – whether the injuries and losses caused by the MRRP flood constituted takings or mere torts – one test of which is the severity of interference test. Plaintiffs glean this from the Court’s discussion in *Ideker I* that “plaintiffs who are able to prove an invasion by government flooding that interfered with that plaintiff’s use and enjoyment of the property for some period of time (which can be established by combining the impacts of flood events over multiple years).” *Ideker I*, 136 at 680. In so concluding, this Court held that “it is not ‘unreasonable to measure the severity of interference with a property owner’s rights by looking to the effects of the interference.’” *Ideker I*, 136 Fed. Cl. at 679-80 (quoting *Ark. Game & Fish III*, 736 F.3d at 1374).

already ruled that it has been established, because the Government, to limit its liability in part, contended in Phase II that: (1) the Court’s causation ruling did *not* conclude that all of the flooding of the Phase II Tracts in 2007, 2008, 2010, 2013, and 2014 was “caused” by the MRRP; and (2) it was *not* liable for any injuries/losses that resulted from “contributing causes” of the MRRP flooding.

I. FES WERE TAKEN BY THE CORPS’ MRRP CHANGES

Plaintiffs claim that FEs were taken by the MRRP because it altered the flooding patterns of the River, causing the Phase II Tracts to be subjected intermittently to inevitably recurring increased flooding from 2004 through the present. Plaintiffs seek just compensation for the injuries and losses that resulted from that MRRP flooding. Thus, in proving their claims, the Plaintiffs were required, *inter alia*, to demonstrate that the MRRP “actually caused” the Phase II Tracts to be subjected intermittently to inevitably recurring increased flooding. Although the Court in its Phase I rulings did not expressly conclude that the MRRP flooding of all three Phase II Tracts in 2007, 2008, and 2010 and the MRRP flooding of the Ideker and Buffalo Hollow Phase II Tracts in 2013 and 2014, constituted the taking of FEs, it did everything but.

The Government did not make any argument in Phase II that the MRRP flooding found by the Court in Phase I did *not* constitute intermittent flooding consistent with the taking of FEs. Rather, it simply attempted to demonstrate, without success, that the flooding patterns of the River from 2004 through 2014 were the same as they had been *pre*-MRRP. In the face of overwhelming evidence to the contrary and the Court’s Phase I rulings, the Government’s contention just does not hold up.

Property is deemed taken where the interference by the Government with the owner's use and enjoyment is such that a servitude is acquired over the property. *Dickinson*, 331 U.S. at 748-

49. In terms of a FE, where “land is not constantly but only at intervals overflowed, *the fee may be permitted to remain in the owner, subject to an easement in the United States* to overflow it with water as often as necessarily may result from the [Government’s actions for an authorized public purpose].” *Cress*, **243 U.S. at 329** (emphasis added). Hence, the taking of a FE can be found where the Government’s actions have and/or will intermittently subject the property to inevitably recurring flooding. *Id.*; *Ark. Game & Fish III*, **736 F.3d at 1372**; *Ridge Line*, **346 F.3d at 1357**. Indeed, a FE can be found where there has only been one flooding event to date, but the evidence indicates an intent to subject the property in the future in inevitably recurring flooding. *Quebedeaux*, **112 Fed. Cl. at 323-24**. “The distinction between tort and takings in the flooding cases is not as easy as saying one flood is a tort and more than that a taking.” *Arkansas Game & Fish Comm’n v. United States*, **648 F.3d 1377, 1382 (Fed. Cir. 2011)**.

This Court has already found in Phase I that the MRRP “caused” the Phase II Tracts to be subjected intermittently to increased recurring flooding from 2004 through 2014, which is consistent with flooding constituting the taking of a FE. Thus, while not expressly concluding in Phase I that the MRRP had taken FEs over the Phase II Tracts, Plaintiffs submit that it appears to be a foregone conclusion. In fact, as the Court noted in *Ideker I*: “The plaintiffs contend that their reliance on the cumulative and combined effects of the Corps’ System and River Changes to establish causation is consistent with the “single-purpose analysis” that the Federal Circuit approved in *Arkansas Game & Fish*.” *Ideker I*, **136 Fed. Cl. at 673** (citing *Ark. Game & Fish III*, **736 F.3d at 1370**). The Court agreed with Plaintiffs, finding that “contrary to the government’s contentions, [*Ideker*] is similar to *Arkansas Game and Fish*.” *Id.* **at 674**. The Court recognized that in *Ark. Game & Fish III*, the Federal Circuit had found that FEs had been taken

under similar circumstances as in this case – where the “deviations were designed to serve a single purpose and *collectively* caused repeated flooding and . . . loss.” *Id.*

The Court recognized in its Phase I Opinion that Dr. Hromadka had evaluated the River’s “patterns in flooding” in rendering his opinion that the MRRP was the but-for cause of the flooding of the Phase II Tracts for the years in question. *Id.* at 699. The Court relied on those evaluations in concluding that Plaintiffs had satisfied the causation element of their claims. *Id.* at 113. In Phase II, the Plaintiffs testified in Phase II concerning the nature and magnitude of the flooding and the flooding patterns of the River being altered due to the Corps’ MRRP. **PFoF ¶ 5-10** (hereafter “**PFoF x**”), **14-19, 46-60, 66-78, 108-124, 132-139**. They testified that the patterns of flooding *post*-MRRP was not the same as it was *pre*-MRRP. Plaintiffs’ expert, Dr. Larry Mays confirmed their testimony. *Id.*; *see also* **PFoF 207-218, 222-225, 274-275**. He testified that the MRRP flooding found by the Court in Phase I was *not* consistent with the existing *pre*-MRRP flooding patterns of the River but was consistent with them having been altered by the MRRP. He further testified that based upon the *post*-MRRP flooding patterns that it was reasonable to expect, as of December 31, 2014 (Plaintiffs’ date for valuing the takings), that the Phase II Tracts would continue to experience inevitably recurring intermittent flooding similar to the flooding that had occurred from 2004 through 2014, provided the MRRP was not terminated. **PFoF 214-217, 222, 225**.

Given the Phase I rulings and the credible Phase II evidence, Plaintiffs have demonstrated that the Phase II Tracts have been and will continue to be subjected to inevitably recurring intermittent flooding consistent with the taking of FEs by the MRRP. Hence, if Plaintiffs claims are otherwise proven, they are entitled to just compensation for any injury or loss that results from *all* of the MRRP flooding of the Phase II Tracts found by the Court.

II. THE COURT CONCLUDED IN PHASE I THAT PLAINTIFFS HAVE ESTABLISHED THE ACTUAL CAUSATION ELEMENT OF THEIR CLAIMS

In proving their claims, Plaintiffs recognize that they had to prove in Phase I, *inter alia*, the element of actual causation – that the MRRP was the “but-for cause” of flooding of the Phase II Tracts that resulted in Plaintiffs sustaining injuries and losses. The Court ruled in Phase I that the Plaintiffs established this element of their claims. As such, it goes without saying that they were not required in Phase II to prove that element again. However, the Parties disagree on what proof of that element means with respect to the Court’s determination in Phase II of the extent of the Plaintiffs’ claimed injuries and losses that resulted from MRRP flooding found by the Court.

As this Court recognized in its Phase I Opinion, the threshold issue to be decided was whether the Plaintiffs had established the element of “causation.” *Ideker*, 136 Fed. Cl. at 672. To show a taking, the plaintiff is required to establish, *inter alia*, that the invasion of the protected property interest in question was *actually caused* by the government-authorized action in question. *Ridge Line*, 346 F.3d at 1355; *St. Bernard Par.*, 887 F.3d at 1362. Hence, Plaintiffs were required to establish that the MRRP “caused” the recurring flooding of the Phase II Tracts from 2004 through 2014 that resulted in injuries and losses for which they would be entitled to just compensation.

In Phase I, the Court concluded that the MRRP was the *but-for* cause of the flooding in 2007, 2008, and 2010 of all three Phase II Tracts and the flooding in 2013 and 2014 of the Ideker and Buffalo Hollow Phase II Tracts, while concluding that the MRRP was not the *but-for* cause of the other years of flooding, including the flooding in 2011. In rejecting all 2011 claims, the Court mooted the issue of determining how much 2011 flooding was attributable to the MRRP and how much would have otherwise occurred in the *only* year where Plaintiffs’ experts opined that some flooding would have occurred regardless of the MRRP. **PFoF 272.**

In Phase II, the Government, in an attempt to limit its liability, raises what appear to be two separate defenses. One is directed at the scope of the Court's Phase I liability ruling as to the *extent of the MRRP flooding*. The other is directed at the Court's Phase II compensation ruling as to the *extent of the MRRP injuries and losses*, which are simply a function of MRRP flooding found by the Court.

As to the Government's first defense, it seeks to limit the scope of the Court's Phase I ruling of causation as to the *extent of the MRRP flooding*. It contends that although the Court concluded that causation for the flooding in 2007, 2008, 2010, 2013, and 2014 had been established, it did *not* mean that the MRRP was the *but-for* cause of all that flooding but only certain increments thereof such that *not all* of the injuries and losses resulting from that flooding would be compensable. Plaintiffs contend, however, that the Court, as a matter of law, in expressly concluding that the Plaintiffs had established the causation element of their claims, necessarily had to have first found that the MRRP was the *but-for* cause of *all* the flooding in question and *all the* injuries and losses that Plaintiffs could show in Phase II resulted from that flooding.

As to the second defense, the Government appears to contend that regardless of the extent of MRRP flooding found by the Court, it should interpret the *but-for* causation standard so that the Plaintiffs would *not* be entitled to just compensation for *all* injuries and losses resulting from that MRRP flooding. Based upon the testimony of the Government's experts, it would appear it is contending that it has no liability for injuries and losses that are attributable to any increment of the MRRP flooding that was caused by contributing factors other than the MRRP. **PFoF 400**. The Plaintiffs contend that if the Government is suggesting such a proportional attribution of causation is what occurs essentially under comparative fault, which plays no role here in determining the extent of MRRP injuries and losses as a matter of law. Plaintiffs contend that under the proper

application of the but-for standard, they are entitled to just compensation for any injury or loss that they have established resulted from the MRRP flooding found by the Court, which they further contend is *all* of the flooding in 2007, 2008, 2010, 2013, and 2014.

A. The Extent of the Flooding Given the Court’s Phase I Ruling of Causation

In Phase I, the Court, *inter alia*, ruled that that the Plaintiffs had “established *causation*, [as well as] foreseeability and severity and their takings claims [would] proceed to the next phase of the litigation[,]” Phase II. *Ideker*, 136 Fed. Cl. at 761-62 (emphasis added). Given the legal meaning of “causation,” the Plaintiffs understood and were on notice that they had established that the MRRP was the *but-for* cause of *all* the flooding of all three Phase II Tracts in 2007, 2008, and 2010, and all the flooding of the Ideker and Buffalo Hollow Tracts in 2013 and 2014. Accordingly, they understood that they would be entitled to just compensation for any injury or loss that they established in Phase II resulted from the extent of the MRRP flooding found by the Court.

The Government disagrees with the Plaintiffs’ interpretation of the Court’s causation ruling. It interprets it to mean that the MRRP was the but-for cause of only *some* of the flooding in 2007, 2008, 2010, 2013, and 2014, not all. For its interpretation, the Government relies heavily on the language of the Court’s Phase I order that it would address in Phase II the “[i]ssues regarding the full extent of the *injury* and of valuing the interest taken. *See Resp. to MIL to Exclude Gov.’s Evid. That Seeks to Relitigate Court’s Phase I Ruling of But-For Actual Causation at 2, July 10, 2020* [ECF 616] (emphasis added)(*citing Ideker I*, 136 Fed. Cl. at 678-79). The Government interprets this language to mean that the Court’s causation ruling did not address the extent of the but-for *MRRP* flooding because that determination would be made as part of the Court’s Phase II determination of the extent of the but-for MRRP injuries and losses. That, however, is not in keeping with the applicable law of but-for causation. The extent of the but-for MRRP injuries and losses is simply a function of the extent of the but-for MRRP flooding.

Moreover, it ignores the fact that the nature of causation is to link an action with the *consequences* of that action. Legally, no determination of causation can be made where there are no identified consequences. As demonstrated below, this is not only consistent with the governing case law, but the Court’s Phase I ruling of causation, which recounts the injuries and losses experienced by each Plaintiff for each individual year of MRRP flooding found by the Court.

To conclude that causation had been established, the Court had to have first concluded that a “chain of causation” existed between the MRRP and the resulting injuries and losses for which the Plaintiffs are seeking just compensation. *See Cary, 552 F.3d at 1379-80*. To conclude that the requisite but-for chain of causation has been established, the trial court has to find that “there is a causal connection between the Corps’ activities *and the damage to plaintiffs’ land.*” *Turner v. United States, 23 Cl. Ct. 447, 455 (1991)* (emphasis added). Thus, in concluding that causation had been established, the Court by law had to have found that a chain of causation existed between the MRRP, the flooding in question, and the resulting injuries and losses alleged.⁵ The Court made that finding and the record supports it.

Here, the chain of causation consists of a series of physical events over time involving the Corps’ MRRP Changes, the combined and cumulative effects of which caused the flooding of the Phase II Tracts. *Cary* recognized that a taking by flooding could be found by such a chain of events where they occurred “in a natural order” without there being an intervening cause that broke it. *Cary, 552 F.3d at 1382*. Thus, in concluding that causation had been established, the Court by law had to have found this requisite chain of causation and that the same had not been broken by any intervening contributing cause.

⁵At that juncture, the Court did *not* have to determine the full extent of the injuries and losses that resulted from the MRRP flooding it found, only that at least some of the injuries and losses alleged resulted from the MRRP flooding found.

Distinguishing the chain of actual causation and the chain of proximate causation, *Cary* held that “[f]or an injury to be a compensable taking, the court must determine that no break in the chain of causation existed between the suspected government authorized action and the injury.” *Id.* at 1380 (emphasis added). It also held that a chain of causation is not broken, allowing the Government to escape liability, simply because there is “an incidental intervening or contributing cause between [its] authorized action and the alleged injury.” *Id.* at 1379-80. (emphasis added); see *Mildenberger v. United States*, 91 Fed. Cl. 217, 260 (2010) (holding that “[a]lthough high rainfall is certainly a contributing cause of plaintiffs’ alleged injuries, it is not an intervening cause between defendants’ actions and [the plaintiff’s] injuries”), *aff’d in part*, 643 F.3d 938 (Fed. Cir. 2011). Hence, mere contributing causes do not defeat but-for causation in whole (complete bar to recovery) or in part (essentially comparative fault). Thus, the Government’s liability in this case was not defeated, in whole or in part, simply because there may have been some unspecified variables or factors that purportedly contributed to cause the MRRP flooding found by the Court and the resulting injuries and losses.

The requisite chain of actual causation is established by showing “what would have occurred if the government had not acted.” *St. Bernard Par.*, 887 F.3d at 1362. The “plaintiff must show that in the ordinary course of events, absent government action, plaintiff would not have suffered the injury” or “what damage would have occurred without government action. *Id.* This standard is referred to as the “but for” standard or test. *Res. Investments, Inc.*, 85 Fed. Cl. at 521; *Banks*, 69 Fed. Cl. at 214. Thus, the relevant question in determining actual causation for a taking by flooding is whether the flooding and the resulting injuries and losses would have occurred “but for” the Government’s alleged actions. *In re Upstream Addicks*, 146 Fed. Cl. at 257. Here, the Court expressly recognized in its Phase I Opinion that its analysis of actual causation

in Phase I was based upon a comparison of the actual world of flooding with the MRRP and the but-for world of flooding without the MRRP. *Ideker Farms, Inc. v. United States*, **146 Fed. Cl. 413, 416 (2020)** (“*Ideker III*”) (citing *Ideker I*, **136 Fed. Cl. at 690**).

The Supreme Court in *Bostock v. Clayton County*, defined the “traditional” standard of but-for causation and how it is to be applied. **140 S.Ct. at 1739**. It held that but-for causation “is established whenever a particular outcome would not have happened ‘but for’ the purported cause.” *Id.* “In other words, a but-for test directs us to change one thing at a time and see if the outcome changes. If it does, we have found a but-for cause.” *Id.* The Court in *Bostock* recognized that there can be “events [that] have multiple but-for causes.” **140 S. Ct. at 1739**. In that situation, the Court held that the “defendant cannot avoid liability just by citing some other [contributing] factor.” *Id.* Hence, in concluding that causation was established, the Court here had to have compared flooding in the actual world, considering the MRRP and any other contributing causes, to the flooding in the but-for world, considering all those causes but *without* the MRRP. In other words, the Court was required, under the but-for standard, to make a comparison that did *not* consider contributing causes as “outcome-determinative” factors. Thus, contributing causes would have no bearing on the Court’s determinations of the extent of the MRRP *flooding* or the extent of the MRRP *injuries or losses*. In concluding that causation was established, the Court had to have made this requisite comparison, which is supported by the record.

Just as a dog wags its tail, under the requisite claim of causation, the extent of the but-for MRRP flooding found in Phase I wags the extent of the but-for MRRP injuries and losses to be determined in Phase II. Accordingly, the Court’s reserving the determination of the extent of the but-for MRRP injuries and losses for Phase II does not provide any support for the Government’s defense.

The Court's causation conclusion in Phase I, both legally and factually, was not a conclusion of causation untethered to the injuries and losses that resulted from the MRRP flooding found. As a matter of law, in reaching that conclusion, the Court was required to "show that in the ordinary course of events, absent government action, plaintiff would not have suffered the injury" or "what damage would have occurred without government action." *St. Bernard Par.*, 887 F.3d at 1362. The record bears out the fact that the Court made this requisite finding, having spent approximately 100 pages of its Phase I Opinion recounting the depths and timing of flooding and crop loss on each individual Phase II Tract. *Ideker Farms, Inc. v. United States*, 142 Fed. Cl. 222 (2019) ("*Ideker I*").

There can be no dispute that the Court understood the burden that the Plaintiffs had to meet in order for it to so rule. That can be gleaned from the Court's order denying the Parties' motions for reconsideration approximately one year after entering its Phase I opinion. After painstakingly reviewing and reconsidering its Phase I conclusions, including its conclusion as to causation and carefully considering its scope, the Court opined:

Regarding the taking claims for 2007, 2008, 2010, 2013, and 2014, after considering the parties' expert testimony and other lay and government witnesses, the court concluded that some of the *plaintiffs [including the Phase II Plaintiffs]* had met their burden of proving causation. The court again based its causation conclusions on the comparisons made by the experts of the flooding that would have occurred for each year in the aforementioned "but for" world without the System and River Changes and the actual world with those changes. Both parties' experts, as noted above, assumed that the flood control protections that had been part of the Corps' Missouri River program before 2004 were in place when making their comparisons between the "but for" and actual world.

Ideker II, 142 Fed. Cl. at 225 (emphasis added). Thus, the Court concluded that Plaintiffs had satisfied the *legally mandated burden of proof* for establishing the causation element of their claims – including linking MRRP flooding to the injuries and losses claimed, without determining their extent.

Plaintiffs submit that this defense turns on what does it mean for the Court to have given notice to the Parties that it had concluded that the Plaintiffs had established the causation element of their claims. In other words, what does it mean legally when a court concludes that the plaintiff in an action for the taking of a FE by inverse condemnation has met his burden in establishing the causation element of his claim. Plaintiffs submit that under the applicable law discussed above, their interpretation of the Court's Phase I ruling of causation, as to extent of the but-for MRRP flooding, is correct – that the MRRP is the but-for cause of all the flooding of the three Phase II Tracts in 2007, 2008, and 2010 and all the flooding of the Ideker and Buffalo Hollow Tracts in 2013 and 2014.

B. Liability for *Injuries and Losses* Resulting from MRRP Flooding Found by Court Is Not Defeated, in Whole or Part, by Contributing Causes

Plaintiffs contend that the Court has already determined the extent of the MRRP flooding in Phase I – that all the flooding in 2007, 2008, 2010, 2013, and 2014 was caused by the MRRP. The Government contends that the determination of the extent of MRRP flooding remains for Phase II as simply a part of the Court's determination of the extent of the MRRP injuries and losses. After resolving that issue, the Court will then turn to determining the extent of the Plaintiffs' injuries and losses that resulted from the MRRP flooding found. However, in doing so, the Court will be faced for resolution with the Government's apparent contributing-cause defense – that it is not liable for any injuries or losses purportedly attributable to factors other than the MRRP that may have contributed to cause the MRRP flooding found by the Court. Plaintiffs contend, however, that under the applicable law, the Government cannot avoid liability, in whole or in part, based upon purported contributing causes of the MRRP flooding.

The Government's apparent contributing-cause defense ignores the well-settled law that under the but-for standard of causation a mere "contributing cause" does not limit the defendant's

liability for the damages. The Supreme Court in *Bostock* held that “a but-for test directs us to change one thing at a time[, the purported cause,] and see if the outcome changes. If it does, we have found a but-for cause.” *Bostock*, 140 S.Ct. at 1739. Thus, here, in determining the but-for cause of the flooding in question and the resulting injuries and losses, the Court was precluded from taking into consideration other possible contributing factors, as the Government would appear to have it do. Moreover, the Court in *Bostock* recognized that there can be “events [that] have multiple but-for causes . . . [but that the] defendant cannot avoid liability just by citing some other [contributing] factor. *Id.* Thus, no less than the Supreme Court instructs that in determining the extent of the Government’s liability for the Plaintiffs’ injuries and losses resulting from the MRRP flooding found by the Court, it cannot consider the purported contributing causes on which the Government relies to limit its liability. The Government’s compensation defense should be rejected and the Plaintiffs be awarded just compensation for 100% of their injuries and losses that resulted from the MRRP flooding found by the Court, which Plaintiffs contend is all the flooding in 2007, 2008, 2010, 2013, and 2014.

C. Even If the Court Determines that the Government Is Legally Entitled to “Incrementalize” Plaintiffs’ Injuries and Losses Based Upon Contributing Causes, No Reliable Evidence Was Admitted to Counter Plaintiffs’ Evidence that All the Injuries and Losses They Presented Were Caused By the MRRP

Even if the Court finds some merit in the Government’s defenses above and determines that it is legally permitted to argue that some portion of Plaintiffs’ injuries and losses were not, in fact, caused by MRRP flooding, the outcome would be the same. At trial, the Government admitted no reliable evidence to “incrementalize” or “parse” Plaintiffs’ injuries and damages. In Phase II, the Government ran into the same stubborn facts that dominated the Phase I trial, eliciting a sense of déjà vu. On one side was consistent eyewitness and expert testimony that logically tied a radical new flooding pattern and the resulting injuries and losses to a well-funded, intentional and public

effort to reconnect the Missouri River to its floodplain and on the other side was complicated modeling that was exposed on cross examination as resting on unrealistic and inaccurate assumptions and providing unrealistic and inaccurate results

In Phase I, Plaintiffs’ experts, Dr. Hromodka and Dr. Christensen, each testified that, with the notable exception of 2011, all the Plaintiffs’ injuries were attributable to the implementation of the MRRP. Dr. Hromodka testified that “the flooding in question would not have occurred” but for the changes related to the MRRP. **PFoF 270**. He expressly rejected the idea that the MRRP only incrementally worsened the flooding, testifying that “all or almost all of the flooding was the result of the Corps’ changes.” *Id.* Furthermore, it was clear from the context of Plaintiffs’ claims and expert testimony in Phase 1 that his “almost all” caveat related to 2011 claims, where Plaintiffs’ experts clarified they could not testify that all flooding resulted from the MRRP. Dr. Christensen also rejected the notion that the MRRP only caused “incremental” additional flooding. **PFoF 272**. Instead, he explicitly opined that, “most *if not all*” of the flooding was caused by the MRRP and clarified that the caveat that prevented him from testifying that “all” of the flooding was caused by the MRRP related specifically to 2011. *Id.* (emphasis added) Specifically, Dr. Christensen identified that 2011 exceeded the system’s capacity and thus some flooding would not have been avoided. *Id.* This was the only caveat Dr. Christensen offered to his conclusion that but for the Corps’ System and River changes post-2004, “the flooding in question would not have occurred.” *Id.*

While the Government argued that Dr. Christensen’s computed WSEs (which were never offered into evidence) did not reflect a magnitude of difference between the “actual” and “but for” condition that would fully account for all Plaintiffs’ damages, Dr. Christensen testified his modeled WSEs were only one of many tools of analysis that informed his conclusions and repeatedly

offered the caveat that his modeling of WSEs, while sufficiently reliable to make “but for” determinations of causation, would not capture the magnitude of WSE increases attributable to the MRRP. **PFoF 273, 276-77.** In his expert report, he went into great detail about why his modeled WSEs could not be held out as capturing the magnitude of the increased WSEs. **PFoF 276-77.** Dr. Hromadka also explained in Phase I that all of the WSE modeling in this case was not even technically necessary to establish causation, as it merely served as corroboration of the other types of analyses he had conducted in the case combined with what his engineering expertise allowed him to conclude about causation from the other independent facts and eyewitness observations in the case. **PFoF 271.**

In Phase II, Dr. Mays’ analysis, which also did not depend on any modeled WSEs, plainly reflected how years with peak flows that had never caused significant flooding prior to the MRRP had started to cause major flooding after the MRRP’s implementation. **PFoF 220, 274.** He explained how the new pattern of flooding caused by the MRRP was predictable given the goals of the program and the methods employed, and explained how the new pattern of MRRP flooding would persist into the future unless and until it is dismantled. **PFoF 212-14.**

Testimony from the Bellwethers was consistent with those expert opinions. In both Phase I and Phase II, bellwethers testified to their first-hand observations that tied a changed river to the MRRP river changes that they witnessed. **PFoF 263-69.**

To counter these expert and eyewitness observations and opinions, the Government offered Dr. Holmes, Mr. Jones and Dr. Evans, who all attempted to incrementalize Plaintiffs’ injuries and damages. At trial, however, those experts each admitted to critical failings in their efforts.

Dr. Holmes admitted to not validating his model. **PFoF 305.** He admitted that he used pre-2003 water surface profiles to model the post-2003 River despite the fact that Dr. Bradley had

disavowed such a modeling approach and that updated water surface profiles were utilized by Mr. Woodbury in Phase I and by Mr. Jones in Phase II. **PFoF 291-94.** He had no credible excuse for this critical failure. He admitted that his “assessment” revealed his model missed WSEs at Buffalo Hollow Farms by 3-4 feet for weeks on end during the only real world tests of how his model performed during actual flooding conditions and he admitted that his assessments showed routine misses of many feet in either direction – sometimes by over six feet. **PFoF 308-10.** Even when his assessments showed him missing by mere inches on a given day, his cross-examination revealed that, in fact, his modeled WSEs could be off by feet only a mile away. **PFoF 310, 312.** Dr. Mays explained how Dr. Holmes’ modeled WSEs routinely underestimated actual WSEs during days with MRRP flooding consistent with Dr. Mays’ and Dr. Christensen’s testimony that WSEs based on gage interpolations would predictably underestimate increases in WSEs due to the MRRP. **PFoF 314.** Dr. Holmes’ modeling was shown to be highly inaccurate and unreliable.

Mr. Jones built his analysis entirely on the back of Dr. Holmes’ modeled WSEs and his analysis is not reliable for that reason alone. **PFoF 322.** Moreover, at trial, he admitted that his threshold elevation calculations themselves were also simplified to the point of not matching reality. **PFoF 331.** He acknowledged he had no opinions on flooding and knew of no way to translate his exceedance calculations to conclusions about flooding. **PFoF 200.** He acknowledged that he had no special expertise to underpin his “literature review” and that he only parroted back documents fed to him by the Corps and DOJ. **PFoF 173-74.** He purported to offer conclusions on flood flow frequency but could not dispute that not only had Dr. Mays come to different conclusions but that the Government’s other expert, Dr. Bradley, had concluded that a number of flooding events on each Phase II tract would recur more frequently and last longer as a result of the MRRP. **PFoF 334-35.** Mr. Jones conclusions were unreliable.

Dr. Evans also utilized Dr. Holmes' modeled WSEs. **PFoF 343.** Although he supplemented this with Dr. Christensen's WSEs, he did not dispute that he used those WSEs in a way that Dr. Christensen himself warned would underestimate flooding and in a way that Mr. Woodbury opined represented a "clear misapplication of the modeling and its results." **PFoF 344-46.** Neither he nor any other Government witness would vouch for the propriety of using Dr. Christensen's modeled WSEs the way Dr. Evans used them. **PFoF 368.** While this alone would plainly render Dr. Evans' results unreliable, this is only one of myriad reasons not to credit his conclusions. **PFoF 349.** He admitted that he also did not validate his model. He admitted that his modeling was replete with critical uncertain parameters, some of which he admitted were not realistic. **PFoF 347.** He attempted to manipulate those parameters through calibration to match reported crop yields as closely as possible, but his post-calibration results demonstrated astronomical mean absolute error rates. **PFoF 348, 357-59, 361.** Dr. Evans' conclusions were unreliable.

Thus, the weight of the evidence clearly supports the conclusion that all of Plaintiffs' injuries were caused by MRRP flooding and cannot support any "parsing" of Plaintiffs' damages nor any findings that the MRRP only caused some "incremental" portion of the flooding at issue. Whether or not Plaintiffs correctly interpreted the Court's Trial Opinion findings on causation, they have proven that the MRRP caused all the relevant flooding and, thus, their injuries and there is no competent evidence on which to base a contrary conclusion.

D. Conclusion as to Actual Causation

Having been put on notice by the Court's Phase I ruling of causation that they had satisfied their burden of proof as to that element of their claims, Plaintiffs necessarily were *not* required to prove that element again in Phase II. Hence, in Phase II, Plaintiffs were not required to establish the extent of the MRRP flooding, only to establish which injuries and losses resulted from the *MRRP flooding* found by the Court.

In Phase I, there was significant evidence admitted not only as to the flooding that was caused by the MRRP, but the injuries and losses that resulted from *that* flooding. Thus, the Court had an ample basis for its predicated findings for concluding that causation was established. Plaintiffs and their experts testified in Phases I and II in great detail concerning how the flooding was caused by the MRRP and how their claimed injuries and losses were tied to *that* but-for MRRP flooding. The Plaintiffs testified in Phase I as to the various categories and magnitude of injuries and losses that they had sustained as a result of the flooding of the Phase II Tracts for the years of *but-for* MRRP flooding found by the Court. And, it should be noted that Plaintiffs are *not* claiming any injuries or losses in Phase II that did not result from the *but-for* MRRP flooding found by the Court.

Plaintiffs were not required to establish in Phase I the full extent and *value* of their MRRP injuries and losses. That was left for Phase II. As a result, Plaintiffs prepared their case for Phase II with an appropriate emphasis on those issues rather than needlessly revisiting the but-for mechanics of how the MRRP worked to cause the flooding in question. However, given the Government's view of but-for causation, it took a different approach as discussed above. As a consequence, in Phase II, its legion of causation experts jumped headlong into the weeds attempting to limit the extent of compensable injuries and losses to be found in Phase II (1) by altering the extent of the MRRP *flooding* found by the Court in its Phase I ruling of causation and/or (2) by excluding *injuries and losses* attributable to contributing causes of the MRRP flooding.

The Government's experts spent many hours in Phase II trying to persuade the Court as to what increment of the MRRP flooding found that was solely attributable to the MRRP and what increment was attributable to other contributing causes down to the last gallon of water, *as if that*

were even possible (the Court’s early admonition against “counting tadpoles” proved prescient). But, it was all for naught because the Government was wrong on both the law and the facts. Not only does the controlling law dictate that a finding that Plaintiffs’ carried their burden of proof with respect to causation in Phase I ends that inquiry as to the extent of MRRP flooding, but the facts of this particular case demonstrate that there was no reliable incrementalizing of the MRRP flooding found by the Court to be accomplished. Plaintiffs met their burden as to causation through *both* phases of trial despite the Government effectively being given a second bite of the apple in defending causation. Thus, Plaintiffs are entitled to just compensation for 100% of any injury or loss that resulted from the MRRP flooding of the Phase II Tracts found by the Court, which Plaintiffs contend under the Court’s Phase I ruling of causation and the evidence, was *all* of the flooding in 2007, 2008, 2009, 2010, 2013, and 2014.

III. PLAINTIFFS HAVE ESTABLISHED THE RIBEF FACTOR

The Court reserved the resolution of the liability issue of Plaintiffs’ RIBEF for Phase II. In doing so, it did not state whether it was treating it as a separate element of Plaintiffs’ claims on which they had the burden of proof or whether it was simply a factor to be considered in determining the element of appropriation. To Plaintiffs’ knowledge, neither the Supreme Court nor the Federal Circuit has addressed the precise role of the RIBEF in the analysis of a physical taking by flooding.⁶ However, given the fact that the element of appropriation is predicated on

⁶As previously briefed, it is Plaintiffs position that the Supreme Court in *Ark. Game & Fish II* did not recognize that the RIBEF is an *element* that is part of Plaintiffs’ burden of proof. To the contrary, it is Plaintiffs’ position that the very wording of that decision makes it clear that it is simply a *factor* to be considered, the Court opining: “The determination whether a taking has occurred includes consideration of the property owner’s distinct investment-backed expectations, a matter often informed by the law in force in the State in which the property is located.” *Ark. Game & Fish II*, 568 U.S. at 38 (emphasis added). The RIBEF factor had never been implicated in any prior physical takings opinions from Supreme Court and, if the Court would have intended to announce a new element and for the property owner’s RIBEF to be part of his burden of proof, it would *not* have used the term “consideration.” Rather, it would have used language

assessing the “nature and magnitude” of the alleged government-induced flooding to determine if it is consistent with a taking or tort, the RIBEF is almost certainly only one factor to be considered in determining whether the plaintiff has satisfied its burden of proof as to the element of appropriation. ***Ridge Line*, 346 F.3d at 1356**. Regardless, Plaintiffs’ RIBEF, as either an element or factor in proving their claims, was addressed in Phase II and based upon the Court’s Phase I findings and conclusions, the credible evidence admitted in Phase II, and the applicable law, Plaintiffs submit that the RIBEF element or factor of Plaintiffs’ claims has been established in their favor. That said, Plaintiffs will address it herein as if it is a factor in determining the element of appropriation.

The Supreme Court in ***Ark. Game & Fish II***, expressly recognized that one factor to be considered in determining whether there had been a taking were the “reasonable investment-backed expectations” of the plaintiff. ***Ark. Game & Fish II*, 568 U.S. at 38-39 (quoting *Palazzolo v. Rhode Island*, 533 U.S. 606, 618 (2001))**. While physical takings by flooding jurisprudence has long recognized the property owner’s “reasonable expectations” of flooding as a takings factor, it was not until ***Ark. Game & Fish II*** that the additional aspect of “investment-backed” was engrafted as part of the factor. Prior to ***Ark. Game & Fish II***, “investment-backed” had only been applied to regulatory takings claims.

The RIBEF factor has two aspects. First is *unexpected* flooding (the flooding that occurred under the *post*-MRRP flooding patterns of the River). That aspect poses the question in this case of whether, based upon the pre-MRRP flooding patterns of the River, the Plaintiffs would have reasonably expected to be “free” from the increased frequency, severity, and duration of the flooding of the Phase II Tracts that occurred from 2004 through 2014, which the Court found in

consistent with a requisite burden of proof, e.g., that “to establish whether a taking has occurred includes ‘demonstrating’ the property owner’s distinct investment-backed expectations . . .”

Phase I for the years of 2007, 2008, 2010, 2013 and 2014 was caused by the MRRP. Second is the Plaintiffs' *reasonable investments* in reliance on the expected flooding – the flooding under the *pre*-MRRP flooding patterns of the River. It poses the question of whether the Plaintiffs made reasonable investments in the property interests at stake here *relying* upon the flooding expected under the *pre*-MRRP flooding patterns. Plaintiffs address each of those aspects separately below.

A. Based Upon the *Pre*-MRRP Flooding Patterns of the River, Plaintiffs Had Reasonable Expectations of Being Free from the Increased Flooding of the Phase II Tracts from 2004 through 2014

Plaintiffs contend that, compared to the nature and magnitude of the flooding under the *pre*-MRRP flooding patterns, the nature and magnitude of the flooding under the *post*-MRRP flooding patterns was unexpected. This alteration of a river's flooding patterns is what the Court of Federal Claims in *Ark. Game & Fish* relied upon in finding a taking. *Ark. Game & Fish I*, 87 Fed. Cl. at 607-08, 626. The Supreme Court in *Ark. Game & Fish II*, opined: “As found by the Court of Federal Claims, the flooding caused by the deviations *contrasted markedly* with historical flooding patterns.” *Ark. Game & Fish II*, 568 U.S. at 29 (emphasis added). Thus, under the standard pronounced by the Supreme Court, flooding that *contrasts markedly* with historical flooding patterns would be, by definition, unexpected flooding that constitutes a taking. This is the precise standard that Plaintiffs are applying in contending that the MRRP altered the *pre*-MRRP flooding patterns of the River such that the flooding under the *post*-MRRP flooding patterns “contrasted markedly” with the flooding under the *pre*-MRRP flooding patterns.

The Government contends that the *pre*-MRRP flooding patterns of the River were not altered by the MRRP such that the flooding of the Phase II Tracts from 2004 through 2014 should have been expected by the Plaintiffs. This is basically an extension of its time-honored defense in this case that “nothing has changed” (“no-change argument”) even though the whole purpose of the MRRP was to affect change in order to *reconnect* the River back to the floodplain during high-

water events, having done the reverse, *disconnected* it, to provide flood control. Despite the Government’s arguments in Phase II, the Court has already effectively rejected the Government’s “no-change” argument by its Phase I ruling of *but-for* actual causation accepting the testimony of the Plaintiffs’ liability experts that the MRRP caused an increase in the frequency and severity of flooding. *See, e.g., Ideker I*, 136 Fed. Cl. at 699 (opinion of Dr. Hromadka adopted by Court that MRRP caused increased flooding). Regardless, as discussed below, the Government’s no-change argument to defeat Plaintiffs’ contention that they have satisfied the RIBEF factor is otherwise without merit.

As to the unexpected-flooding of the RIBEF factor, the Federal Circuit explained in *Ark. Game & Fish III*, the issue is whether the flooding that damaged the property interests in question is flooding that the property owner could have “reasonably expected to experience in the natural course of things.” *Ark. Game & Fish III*, 736 F.3d at 1375. Thus, the question whether the flooding is unexpected because the property owner had a reasonable expectation of being “free” from that flooding given the existing flooding patterns of the River before the Government actions alleged? *Id.* Stated another way, did the Government’s alleged authorized actions for a public purpose “interfere with interests that were sufficiently bound up with the reasonable expectations of the claimant?” *Penn Cent. Transp. Co.*, 438 U.S. at 123.

Plaintiffs submit that the Court has already signaled that Plaintiffs have satisfied the RIBEF factor to establish the element of appropriation. In ECF 495 at 102, the Court posed the question as to whether its determination in its “Reconsideration Opinion” that the MRRP Changes “increased flooding to a degree that would not have been *contemplated* when the River and Mainstem System Structures were planned,” *Ideker II*, 142 Fed. Cl. at 232 (*citing Ideker I*, 136 Fed. Cl. at 690), such that the RIBEF “requirement for plaintiffs that acquired their property

interest prior to 2004” had been satisfied. The Plaintiffs, who all purchased their property interests before 2004, answered:

The Court’s determination in its Reconsideration Opinion clearly establishes that the Plaintiffs, at the time of the MRRP was planned and authorized in 2004, did not contemplate or expect the degree of flooding that they allege took FEs after 2004 starting in 2007. Thus, the Court necessarily has already determined that the Phase II Plaintiffs who purchased their tracts prior to 2004 did not contemplate or expect the nature and magnitude of the MRRP flooding post-2004.

Status Report at 14, Sept. 30, 2019 [ECF 502]. It is still Plaintiffs’ position that the Court has necessarily already determined that the MRRP-induced flooding of the Phase II Tracts after 2004 was *not* consistent with the degree of flooding that Plaintiffs had expected and relied upon when they invested in them – the flooding under the *pre*-MRRP flooding. Unless the Government somehow demonstrated in Phase II that the MRRP did *not* cause a change in the nature and magnitude of *post*-MRRP flooding, the RIBEF factor in Phase II would be deemed satisfied. Plaintiffs submit that given that the Government’s experts’ analyses in Phase II were fatally flawed for numerous reasons, as discussed below, the Government made no showing that would justify the Court changing course and finding against Plaintiffs on this issue.

The major flaw in the Government’s experts’ analyses of Plaintiffs’ RIBEF is that they did *not* employ the relevant timeframe of reference for the flooding. Rather than focusing on the flooding and flooding patterns of the River *after* the System and BSNP and *before* the MRRP, they focused significantly on flooding and flooding patterns *before* the System and BSNP, including flooding as far back as the 19th century. As a matter of common sense and logic alone, Plaintiffs’ expectations of flooding for making investments in the 21st Century would have been based on flooding *with* the System and the BSNP prior to the MRRP, not flooding in the 1800s. Moreover, the Court has implicitly recognized that the relevant time period is after the System and BSNP and before the MRRP. That can be gleaned from the fact that the Court in posing its question as to

whether it had already found the RIBEF factor in Plaintiffs’ favor referenced its finding as what flooding was “contemplated” at the time the System and BSNP were planned and constructed. ***Ideker II*, 142 Fed. Cl. at 232.** And, to be consistent in its reasoning, in determining the Plaintiffs’ expectation of MRRP flooding, it would seem logical that the Court would employ the same timeframe that it based its causation ruling upon – the period *after* the System and BSNP and *before* the MRRP. *See Ideker III*, 146 Fed. Cl. at 416 (recognizing in its Reconsideration Opinion that this is timeframe it used to determine causation).

Further confirmation of the relevant timeframe for determining the RIBEF factor can be found in the Court’s opinion denying the Government’s motion to amend to add a *Sponenbarger* affirmative defense. There, the Court opined that the “plaintiffs, of course, purchased and developed their properties because the Mainstem System and the BSNP were in place.” ***Ideker III*, 146 Fed. Cl. at 422.** It further opined, in relevant part: “The court has determined that the flood protection provided by the Mainstem System and the BSNP is the baseline of flood protection against which the additional flooding caused by the MRRP should be judged for purposes of deciding both causation and government *liability for any taking in this case.*” ***Id.* at 416** (emphasis added). Thus, Plaintiffs would submit that the Court has implicitly already set the relevant parameters for determining the RIBEF factor whereby it will not look to flooding that occurred prior to the existence of the System and the BSNP. Yet, both Dr. Ari Kelman and Mr. Jonathan Jones, in forming their opinions concerning the Plaintiffs’ purported failure to satisfy the RIBEF factor, relied significantly on histories of flooding events that occurred prior to the System and BSNP. Thus, their opinions are irrelevant and unreliable.

Putting aside the Government’s “no-change argument,” the evidence in Phase I alone is sufficient to establish that the Plaintiffs, at all critical times, had every reason to expect that the

flooding patterns that had existed for decades pre-MRRP would continue and that they relied upon continued historical levels of flood protection in managing their Phase II property interests. This is consistent with their testimony in both Phases I and II. *See, e.g., PFoF 12, 61-62, 66, 125, 130, 263-268.* Moreover, it would be unreasonable to expect otherwise given the decades of the Corps' management of the River. Based upon those decades of flood control, no reasonable River Basin stakeholder, including the Plaintiffs, would have ever predicted that the Corps, after decades of honoring a pre-emptive priority of flood control and after spending billions of dollars to tame the River in order to induce people and businesses to settle and invest in the Basin, would suddenly change course and intentionally alter the existing flooding patterns of the River to benefit the ecosystem and fish and wildlife, predictably putting at risk the very lives and existence of those people and businesses it had intentionally drawn to settle and invest in the River's basin in reliance upon a "tamed" River. Historical records and government publications clearly document this very history. **PFoF 161-171.** Thus, a reversal of course was unfathomable. Yet, as this Court has already found, that is exactly what the Government did. Moreover, the Government from the beginning told the Plaintiffs that the MRRP would not cause unexpected flooding. The Plaintiffs believed it until the very end, to their detriment having relied upon those representations in making their investments in the Phase II Tracts.

Further rendering the Government's experts' opinions as to the RIBEF factor unreliable is the fact that in some instances, they used comparisons based solely upon injuries and losses without regard for flooding. Such comparisons are not the requisite apples to apples comparisons that would render a true understanding of whether the flooding in question was unexpected, much like comparables in doing real estate appraisals.

The reservation of the RIBEF factor for Phase II was to allow the Government an opportunity to muster any opposition it might have to that factor favoring an appropriation. However, as noted above, in denying the Parties' cross-motions for reconsideration, the Court recognized that it had found in Phase I that "the changes made to the Corps' River and Mainstem system [BSNP and System Changes] after the court order requiring the Corps' compliance with the ESA increased flooding to a degree that would not have been contemplated when the River and Mainstem System structures were planned." *Ideker*, 142 Fed. Cl. at 232 (citing *Ideker I*, 136 Fed. Cl. at 690). This finding clearly stands for the proposition that the Court has essentially already determined (correctly) that the MRRP flooding of the Phase II Tracts from 2004 through 2014 was "unexpected" when compared to the flooding expected under the pre-MRRP flooding patterns. The Government provided nothing in Phase II to justify second guessing that Plaintiffs have satisfied the RIBEF appropriation factor.

B. Based upon Plaintiffs Reasonable Expectations of Being Free from the Nature and Magnitude of the Flooding of the Phase II Tracts From 2004 Through 2014, Plaintiffs Invested in Those Interests Which Investments Were Frustrated

As to the "investment-backed" aspect of the RIBEF factor, Plaintiffs have not found any authority that defines expressly what constitutes an "investment" for purposes of this factor in *physical* takings by flooding cases. However, given the fact that a property owner in a physical takings case is to be compensated for the interference with the use and enjoyment of the property interests taken and the underlying rationale of this factor in determining an appropriation, Plaintiffs submit that an "investment" would be any reasonable expenditure for carrying out the purposes of the property interest in question, including, but not limited to, expenditures for acquiring the property interests, improvements, maintenance, flood prevention, operations, equipment, etc.

In addition to evidence in the record regarding the Plaintiffs' reasonable expectations of flooding being at odds with the flooding under the *post*-MRRP flooding patterns that occurred from 2004 through 2014, there is also evidence in the record establishing that each of the Phase II Plaintiffs invested in their property interests relying on their reasonable expectations of flooding based upon the *pre*-MRRP flooding patterns. **PFoF 11-13 (Adkins), 61-66 (Ideker), 125-131 (Buffalo Hollow), 159, 172, 263-267.** Moreover, the Court has already recognized in Phase I that the purpose in providing flood control was to promote human settlement and to support economic development. *Ideker I*, **136 Fed. Cl. at 661.** In other words, the Government wanted the Basin stakeholders to rely on the *pre*-MRRP flooding patterns to induce people and businesses not only to locate in the Basin, but to invest in and develop it as well. **PFoF 160-171.** That was the whole purpose of the Government's decades of flood control projects, including most notably the construction of the System dams and reservoirs and the BSNP river-control structures, and the evidence establishes that purpose was given effect, *inter alia*, through the Plaintiffs themselves. **PFoF 159-172, 187.**

The answer to whether the Plaintiffs made investments in the Phase II property interests in question by relying on their reasonable expectations as to flooding based on the *pre*-MRRP flooding can again be found in the Court's determination in its Reconsideration Opinion that the "plaintiffs, of course, purchased and developed their properties because the Mainstem System and the BSNP were in place." *Ideker III*, **146 Fed. Cl. at 422.** This finding clearly reflects that the Court has already recognized that the Plaintiffs invested in their Phase II property interests in question based upon an expectation of flooding consistent with the *pre*-MRRP flooding patterns.

Just Compensation Issues

In establishing the extent of the injuries and losses that resulted from the MRRP flooding of the Phase II Tracts and their values, Plaintiffs are only required to show them to a "reasonable

approximation.” *Ark. Game & Fish III*, 736 F.3d at 1379. As to the legal standard for determining whether the Plaintiffs have satisfied their burden of proof as to the injuries and losses for which they seek just compensation, there is no absolute formula or inexorable rule that governs. *Cors*, 337 U.S. at 332; *Toronto, Hamilton & Buffalo Navigation Co.*, 338 U.S. at 402; *Georgia-Pacific Corp.*, 640 F.2d at 336; *Hendricks*, 14 Cl. Ct. at 149. There is no one approved approach for determining what injuries and losses are compensable; rather, the determination must be based on the particular facts of each case. *Hendricks*, 14 Cl. Ct. at 149. The constitutional requirement of just compensation derives as much from the basic equitable principles of fairness as it does from technical concepts of property law. *Fuller*, 409 U.S. at 490.

The victim of a permanent taking is typically entitled to the fair market value of his property at the time of the taking and the victim of a temporary taking is usually entitled to the fair rental value of the property for the period of the taking. *Otay Mesa*, 670 F.3d at 1364. But these methods are not exclusive – there may be appropriate alternative valuation methods for the taking of an easement. *Id.* The default rules may give way when, for example, the market value has been too difficult to find, or when its application would result in manifest injustice to the property owner or the public. *United States v. 50 Acres of Land*, 469 U.S. 24, 29 (1984); *United States v. Commodities Trading Corp.*, 339 U.S. 121, 123 (1950).

The Fifth Amendment does not require plaintiffs to prove the precise amount of damages; rather, it only requires that the quantum of damages be shown to a reasonable approximation. *Ark. Game & Fish III*, 736 F.3d at 1379. Damages are not rendered uncertain because they cannot be calculated with exactness. It is sufficient if a reasonable basis of computation is afforded, although the result be only approximate. *Eastman Kodak Co. v. Photo Materials Co.*, 273 U.S. 359, 379 (1927) (quoting 295 F. 98, 102 (5th Cir. 1923)). All that is required is such reasonable certainty

that damages may not be based wholly upon speculation and may be estimated with a fair degree of accuracy. *Ark. Game & Fish III*, 736 F.3d at 1379; *Huntley*, 135 F. Supp. At 564.

Plaintiffs' following discussion is not an exhaustive discussion of all the remaining compensation issues, but is a discussion of those that Plaintiffs deem need a more enhanced explanation for understanding beyond Plaintiffs' Proposed Findings and Conclusions

IV. FOR THE PURPOSE OF DETERMINING JUST COMPENSATION, THE MRRP FES THAT WERE TAKEN ARE *PERMANENT* BECAUSE THE GOVERNMENT HAD NOT ABANDONED THEM AT THE TIME OF TRIAL BY TERMINATING THE MRRP

Applying the standard found in *Ark. Game & Fish* for the taking of a FE by temporary flooding, Plaintiffs contend that the MRRP Changes took FEs over the Phase II Tracts by subjecting them to inevitably recurring intermittent flooding for the years of MRRP flooding found by the Court in Phase I. And, for the purpose of determining just compensation for the taking of those FEs, applying the standard found in *Ark. Game & Fish*, the Plaintiffs contend that the FEs are "permanent," entitling them to additional just compensation for the diminution in the fair market values ("DIFMV") of the Phase II Tracts – the values of the permanent FEs.

In an inverse condemnation action for a physical taking by flooding, there is only one legal standard for determining the *liability* issue of whether there has been a taking of a FE by an authorized government action for a public purpose. The underlying rationale for the *actual cause of the taking* does not turn on whether the taking is considered permanent or temporary. "Temporary takings are not different in kind from permanent takings – a temporary taking simply occurs when what would otherwise be a permanent taking is temporally cut short." *Am. Pelagic Fishing*, 379 F.3d at 1371 n.11 (citing *Wyatt*, 271 F.3d at 1097 n.6). The essential distinction between a permanent FE ("PFE") and a temporary FE ("TFE") is simply that a TFE has a finite start and ending, while a PFE has a finite start but *not* a finite ending. *Id.* (opining that "[t]he

essential element of a temporary taking is a finite start and end to the taking” (*quoting Wyatt*, **271 F.3d at 1097 n.6**)). Thus, whether an easement is permanent or temporary is *not relevant* to the liability issue of whether a FE has been taken. *Otay Mesa*, **670 F.3d at 1363** (holding: “The duration of a physical taking pertains, *not* to the issue of whether a taking has occurred, but to the determination of just compensation.”) (*citing Skip Kirchorfer*, **6 F.3d at 1582-83**). Thus, in determining the *liability* issue of actual causation – here, whether the MRRP imposed FEs over the Phase II Tracts due to intermittent flooding – the Court is to apply the same legal standard without regard for whether they are permanent or temporary.

The applicable law is crystal clear that the distinction between a PFE and a TFE has *no* relevancy in determining the Government’s *liability* for the taking of a FE. It is only relevant in determining the just compensation to which the property owner would be entitled for the taking of a flowage easement. *Otay Mesa*, **670 F.3d at 1363**; *Skip Kirchorfer*, **6 F.3d at 1583**; *Yuba Nat. Res., Inc. v. United States*, **821 F.2d 638, 641 (1987)**. “[C]ourts use different methods to determine just compensation owed, depending on the temporal classification of a taking.” *Otay Mesa*, **670 F.3d at 1363** (*citing Yuba Natural Res.*, **821 F.2d at 641**). “The duration of a physical taking pertains, *not* to the issue of whether a taking has occurred, but to the determination of just compensation.” *Id.* (emphasis added) (*citing Skip Kirchorfer*, **6 F.3d at 1582-83**). Thus, only *after* a taking of a FE has been found, does the trial court address this distinction as a just compensation issue. *Causby*, **328 U.S. at 267-68**; *Otay Mesa*, **670 F.3d at 1363**.

In the sense of an easement, permanent does not mean forever. *Otay Mesa*, **670 F.3d at 1367**. “Thus, the government has been held to have permanently taken property, despite the fact that all takings are temporary, in the sense that the government can always change its mind at a later time.” *Id.* (internal quotation marks and alterations omitted) (*quoting Hendler v. United*

States, 952 F.2d 1364, 1376 (Fed. Cir. 1991)). Hence, in classifying whether an easement is permanent or temporary for the purpose of calculating just compensation, the legal standard is straightforward – does the FE found still exist *at the time just compensation is awarded* or has it been terminated. *Ark. Game & Fish I*, 87 Fed. Cl. at 619-20 (holding that the single-purpose government-induced flood of seven years constituted a temporary rather than permanent FE “because the Corps terminated its deviations” that were the underlying cause of the taking). Thus, in determining whether a FE already found is permanent or temporary for the purpose of calculating just compensation, the question is whether the easement still exists or has been terminated at the time just compensation is awarded or in other words, at the time of trial. *Otay Mesa*, 670 F.3d at 1364. “[The] abandonment of a permanent taking creates a temporary taking, thereby affecting the compensation due.” *Id.* at 1366. Hence, in determining just compensation due the Plaintiffs in Phase II for the taking of FEs over the Phase II Tracts, the Court must classify those FEs as either being permanent or temporary – had they been abandoned at the time of trial.

In *Ark. Game & Fish I*, the Court held that “the inundations . . . were recurrent and constituted an appropriation, *albeit a temporary rather than permanent one because the Corps terminated its deviations.*” *Ark. Game & Fish I*, 87 Fed. Cl. at 619-20 (emphasis added). A FE found to have been caused by government flood-increasing actions, logically cannot still exist if those actions have been terminated, as was the case in *Ark. Game & Fish I*. Plaintiffs submit that in this case, because the underlying government actions that caused the imposition of the FEs over the Phase II Tracts – the MRRP Changes – were *not* terminated at the time of the Phase II trial, any FEs that the Court finds have been imposed over the Phase II Tracts by the MRRP flooding, would be “permanent” for purposes calculating just compensation.

V. THE FES TAKEN OVER THE PHASE II TRACTS AS PERMANENT EASEMENTS SHOULD BE VALUED AS OF DECEMBER 31, 2014

The Parties disagree as to the date for valuing the FEs that were taken by the MRRP over the Phase II Tracts. This issue was briefed by the Parties for the Court, at its request, but there has been no decision to date. The date for valuing the Plaintiffs' PFE losses is critical because it has a direct and significant impact on the calculation of that component of just compensation relating to the methodology approved by the courts for determining that component of just compensation – comparing the FMV of the property in the *but-for* world of flooding *without* the MRRP and the FMV in the actual world of flooding *with* the MRRP.

Because the FMV of property invariably shifts over time, the calculation of the just compensation to be awarded for PFEs has to be tied to a particular point in time. For such losses, the courts have found the date of valuation to be the date of the taking of the property interest in question. *Kirby Forest Indus.*, 467 U.S. at 10 (citing *564.54 Acres of Land*, 441 U.S. at 511-13); *Clarke*, 445 U.S. at 258 (“The value of property taken by a governmental body is to be ascertained as of the date of taking”); *see also Whitney Benefits, Inc. v. United States*, 18 Cl. Ct. 394, 406 (1989) (“Having determined that a taking has occurred, the court must find the value for which plaintiff is to be compensated. The first inquiry necessarily involves establishing the date on which the taking took place.”), *modified*, 20 Cl. Ct. 324 (1990), *aff’d*, 926 F.2d 1169 (Fed. Cir. 1991). However, the “date of taking,” for the purpose of valuing the taking of a flowage easement, varies depending on the particular facts and circumstances of the case.

While the Government recognizes that the date of a taking is in most instances used as the date for valuing just compensation, its position as to what constitutes the date of the taking in this case differs vastly from what the law requires. And, because the Plaintiffs submit that the Government’s experts’ analyses, calculations, and opinions regarding the valuation of the

Plaintiffs' PFE losses do *not* comply with the correct legal standard for determining that date, those analyses, calculations, and opinions, along with any supporting testimonial and documentary evidence, ought to be disregarded by the Court in its determination of just compensation for the FEs that were taken.

In determining the date for valuing the property interests that were taken by the FE in *Ark. Game & Fish I*, the Court there held that "property is to be valued on the date the taking occurred." *Ark. Game & Fish I*, 87 Fed. Cl. at 645. In so holding, it recognized that the Federal Circuit, when confronted with making that determination in *Cooper*, 827 F.2d at 764, applied the same legal standard enunciated by the Supreme Court in *Dickinson* for determining the date "when the claim arose," sometimes referred to as the *date of accrual*. *Ark. Game & Fish I*, 87 Fed. Cl. at 645. Thus, the Federal Circuit treated the date of accrual as the date of taking for the purpose of valuing just compensation.

In *Cooper*, the Federal Circuit, in determining when the taking occurred for the purpose of valuing just compensation for flooding, adopted the *Dickinson* standard for when a claim has accrued for purposes of filing. *Cooper*, 827 F.2d at 764. In *Dickinson*, the Supreme Court in addressing when a cause of action arises for the purpose of determining whether the applicable six-year statute of limitations had been satisfied, recognized that such a standard must be pragmatic and take into consideration the "function which the concept serves *in a particular situation*," understanding that each determination of the taking date must turn on its own particular facts and circumstances. *Dickinson*, 331 U.S. at 748 (emphasis added). It then recognized that "[p]roperty is *taken* in the constitutional sense when inroads are made upon an owner's use of it to an extent that, as between private parties, a servitude has been acquired either by agreement or *in course of time*." *Id.* (emphasis added). The Supreme Court held that where the "source of the entire claim –

the overflow due to rises in the level of the river – is not a single event, [but] is continuous,” as here, a claim does not arise “until the situation becomes stabilized” and that a situation is stabilized where the “consequences of inundation have so manifested themselves that a final account may be struck.” *Id.* at 749. In other words, the Supreme Court held that in an inverse condemnation action where the taking by flooding is due to “a continuing process of physical events,” the taking has not accrued until the flooding in question has stabilized to the point that the consequences of that flooding are ascertainable such that the “owner is not required to resort either to piecemeal or to premature litigation to ascertain the just compensation for what is really taken.” *Id.* Thus, under the stabilization doctrine to determine the accrual and valuation date of the FE taken clearly would *not* be the first date of the MRRP flooding, August 31, 2007, as the Government contends.

As Dr. Hromaka testified in Phase I, “there’s been an ongoing program that started a process where the [R]iver was put out of equilibrium, out of its balance. And that affects was lumped together with the term geomorphology of the [R]iver, and that’s how the [R]iver is metamorphosing with respect to sediment transport, the changes in the [R]iver geometry that’s ongoing, both mechanically and by actual excavation and hauling away, by dumping of sediment into the [R]iver, altering the water flow characteristics, which, in turn, triggers other sediment transport activities, the river is no[t] the same anymore. And until total equilibrium is reached under this new state, it’s going to continue to be out of equilibrium and they’re going to continue to have a geomorphologic change over and occurring with time until it reaches a new balance.”

Phase I Tr. 5523:24 – 5525:1. Evidence introduced in Phase II reflected that the Corps’ own analysis of channel roughness in the stretches of the River where Phase II Tracts are located significantly changed (increased) in between 2003 and 2015, but stabilized and held constant from 2015 to 2018. Thus, the stabilization doctrine would suggest a date of the takings of the easements

over the Phase II Tracts would be sometime around the end of 2014, but whether they were permanent or temporary would *not* have been known at that time.

In adopting the *Dickinson* standard for determining the date for valuing a FE, the Federal Circuit in *Cooper* recognized that the critical question is when did the flooding in question “become sufficiently stabilized” such that the property owner could determine what property interests were taken. *Cooper*, 827 F.2d at 764. In recognizing that proposition, the Federal Circuit was recognizing, as did the Court in *Dickinson*, that it is the certainty of the consequences of the FE that was taken and the ability to *ascertain their values* that determines when a taking has accrued for the purpose of valuing just compensation. Thus, applying the *Dickinson* standard, the Federal Circuit held in *Cooper* that although the trees began to die in 1979, the extent of destruction was not ascertainable until 1984 such that the taking of the *property interest* in question did not occur on the first date of flooding but when the destruction of the trees due to the flooding was ascertainable. *Id.* Thus, under the *Dickinson* standard, it is not when the flooding in question begins that controls the date of accrual for valuing just compensation, but when the flooding has stabilized *and* the extent of the damage or destruction caused by *that* flooding is ascertainable. Hence, because the determination of whether a FE that has been taken is permanent does not occur until the time of trial, the just compensation for the same cannot be ascertained until the time of trial, meaning that would be the valuation date for a PFE.

In *Northwest Louisiana Fish & Game Preserve Commission*, the Federal Circuit, in interpreting the stabilization doctrine enunciated in *Dickinson*, held that under that standard, a taking accrues when all the events which fix the Government’s alleged liability have occurred and the harmed party knows or should have known of their existence. 446 F.3d at 1290 (*citing Boling v. United States*, 220 F.3d 1365, 1370 (Fed. Cir. 2000); and *Hopland Band of Pomo Indians v.*

United States, 855 F.2d 1573, 1577 (Fed. Cir. 1988)). As the Federal Circuit explained in *Mildenberger*, the Supreme Court in *Dickinson* adopted the stabilization doctrine rather than strictly applying the traditional accrual principles “because when a public project gradually results in *cumulative* damage to private property over a long period of time, it may be difficult to determine the precise date on which the takings claim accrued.” *Mildenberger*, 643 F.3d at 945-46 (emphasis added) (citing *Dickinson*, 331 U.S. at 749). But, no court has held that property owners are precluded from recovering for losses that accumulated during the period of time before the situation has stabilized, as the Government has previously contended.

In proposing August 31, 2007, as the date for the PFE valuations, the Government ignores the fact that the claimed FEs were taken by a series of physical events invoking the *Dickinson* stabilization standard as the date of valuation. Rather, it contends that under the applicable legal standard for when a taking of property interests occurs, the date for valuing the PFEs claimed by the Plaintiffs is simply the “*date of the first flood* of each property in 2007,” **Resp. to Notice re. U.S.’ Resp. to Pls.’ Notice of Taking at 9, Nov. 19, 2019 [ECF 518]** (emphasis added), August 31, 2007. This is the date the Government’s experts’ analyses, calculations, and opinions all rely upon concerning the differences in fair market values relating to the PFEs. However, under the *Dickinson* standard and the undisputed facts and circumstances of this case, that date, as a matter of law, is not the correct or appropriate date for valuing Plaintiffs’ PFE losses.

While each case is to stand on its own facts and circumstances when determining the date of a taking to value the just compensation due a property owner for the property interests that were taken by the imposition of a government-induced FE, the Court in *Dickinson* effectively rejected outright the possibility that the date of the first flood of a FE could serve as that date. *Dickinson*, 331 U.S. at 749. In that regard, the Court rejected the proposition that a taking occurs or a claim

arises “as soon as [the property owner’s] land is invaded,” that rejection being based, in part, on the “uncertainty of the damage[s]” at that point in time that would ultimately result from the flooding in question. *Id.* Likewise, the Federal Circuit in *Cooper* rejected the first date of flooding of the FE in question as the date of when the taking in question occurred taking in holding although the flooding damaged the timber in question beginning in 1979, the taking did not occur until the full extent of the injuries to the timber was known in 1984. *Cooper*, 827 F.2d at 764. Thus, any analyses, calculations, and opinions of the Government’s experts that rely on August 31, 2007, as the appropriate date for valuing the FEs are necessarily flawed and unreliable.

As discussed above, the time when the flowage easement is taken in terms of the situation being stabilized and it being ascertainable that the property is being subjected to inevitably recurring flooding due to government action for an authorized public purpose is not necessarily the same time a claim accrues for just compensation for the taking of a permanent flowage easement. It may or may not come at the same time as accrual. Certainly, in this case, the Government could have at any time prior to trial terminated the MRRP and fixed the nature of the flowage easements taken as temporary for purposes of just compensation, but it did not. And, because it did not, it was not until pre-trial discovery in 2020 that the Government confirmed that the MRRP was not going to be terminated such to the extent that the MRRP was found to have taken flowage easements over the Phase II Tracts they would be permanent flowage easements and would be valued as such.

The Government contends that at the very least the valuation date of the flowage easements had to be prior to the Plaintiffs filing suit in March of 2013 because at that point in time their claims had necessarily accrued to allow them to file suit. However, that argument ignores the fact that the Federal Circuit has recognized “that the precise nature of the takings claim, *including*

whether it is permanent or temporary, may be unknown when it accrues.” Caldwell, 391 F.3d at 1234 (emphasis added).⁷ Hence, the date of valuation of the PFEs in this case, which was not ascertainable until trial under the applicable legal standard for valuing a PFE, could and did fall after the date the Plaintiffs filed their complaint. That said, Plaintiffs do not contend that the valuation date is the date of trial under the particular facts of this case, but the Court’s cut-off date of December 31, 2014.

Plaintiffs understand that the implications of the Court’s cut-off date as to what flooding will be considered in addressing their claims for just compensation. They have interpreted that to mean that they would be entitled to just compensation for any property interests taken by flooding as of that date. That necessarily would include any DIFMV of the Phase II Tracts as of *that* date due to the MRRP FEs that remained ongoing. Thus, given the cut-off date, Plaintiffs anticipated that an argument could possibly be made that any DIFMVs of the Phases II Tracts caused by MRRP FEs would have to be calculated as of that date. Hence, as a compromise and in order to be conservative with their demand and consistent with the Court’s approach to trial, Plaintiffs determined that the most appropriate date for valuation under the law and taking into consideration all the unique facts and circumstances of this case, was the Court’s cut-off date.⁸

⁷ Furthermore, Plaintiffs submit that because the Government did not put Plaintiffs on notice that it did *not* plan to terminate the MRRP until 2020, there was no way for Plaintiff to ascertain the full extent of the just compensation to which they were entitled for the taking of the flowage easements and the value of the same until that moment in time. Thus, given the applicable law and the specific facts and circumstances of this case that bear on the valuation of the MRRP flowage easements taken as PFEs, Plaintiffs would submit that would have been in 2020 when the Government admitted in pretrial discovery that the MRRP was not going to be terminated. This, however, does not take into consideration the Court’s cut-off date of December 31, 2014, for Plaintiffs’ flooding claims entitling them to just compensation.

⁸As to the practical role of the Court’s cutoff date, it limits the compensable injuries and losses by limiting Plaintiffs’ recovery to only those injuries and losses that resulted from the MRRP flooding of the Phase II Tracts from 2004 through 2014. In that regard, it is important to note that Plaintiffs are only seeking just compensation for government actions and flooding events through the end of 2014, including valuing their PFE losses as of December 31, 2014.

Plaintiffs' contention as to the taking dates for valuing the PFEs being no earlier than December 31, 2014, are borne out by the Court's Phase I rulings and the Phase I evidence in support of those rulings. The evidence in Phase I established that there was flooding of the Phase II tracts in 2007, 2008, and 2010, which this Court concluded were caused by the MRRP and which resulted in injuries/losses to Plaintiffs' property interests in those Tracts for which they would be entitled to just compensation under the Court's Phase I ruling of *but-for* actual causation. In making that ruling, the Court did not treat them in its taking analysis as three separate floods of one year each, but correctly treated them as one MRRP induced-flood consistent with the *Ark. Game & Fish III's* one purpose analysis adopted by the Court. Thus, in determining the taking dates of the Phase II claims under the *Dickinson* standard adopted by the Federal Circuit, the flooding of the Phase II Tracts for the years of 2007, 2008, and 2010 were viewed as one ongoing flood that demonstrated an alteration in the System/BSNP flooding patterns of the River.

The credible evidence supports the fact that Plaintiffs did not even begin to consider whether the flooding in question was caused by the MRRP until, at the earliest, after the 2010 MRRP floods. At that point in time, however, the circumstances would not begin to satisfy the *Dickinson* stabilization standard for determining the accrual date for the taking of FEs over the Phase II claims and valuing them as either PFEs or TFEs. This is especially true where, as here, the tracts in question were subject to prior occasional flooding that was not manmade. *Banks v. United States*, 741 F.3d 1268, 1281-82 (Fed. Cir. 2014). Because the Phase II Tracts are in the floodplain and had experienced some natural flooding previously, it would be unreasonable to infer that the Plaintiffs, prior to June 2010 MRRP flooding, would have known or should have been able to discern the difference between naturally occurring flooding and that caused by the MRRP. *Id.*

Given the credible evidence and the applicable law, Plaintiffs submit that the Court's cut-off date of December 31, 2014 is the correct date for valuing the FEs taken as PFEs.

VI. GOVERNMENT NEITHER PLED NOR PROVED SETOFF

Although it is undisputed that the Government failed to plead the affirmative defense of setoff, as mandated by **RCFC 8(c)(1)**, it was nonetheless allowed to present evidence in Phase II on that issue without first seeking leave of Court. Plaintiffs renew their motion to strike the Government's Phase II requests for setoff on the basis that setoff was never pled as required and that defense is not properly before the Court for determination. In the alternative, should the Court find that the Government's requests for setoff are properly before it, Plaintiffs ask the Court to reject setoff on the basis that the Government did not satisfy its burden of proof entitling them to the setoff relief requested.

A. Setoff Was Waived for Failure to Provide Sufficient Notice to Plaintiffs

In their pre-trial motion in limine asking the Court to exclude the Government from raising the affirmative defense of setoff in Phase II, **Pls.' MIL to Exclude from Phase II of Tr. Affirmative Defenses of Setoff, July 6, 2020 [ECF 588]**, the Plaintiffs set forth, in detail, why the Government was required by **RCFC 8(c)(1)** to affirmatively plead such a defense in its answer to Plaintiffs' initial and first-amended complaints filed in 2014 and failed to do so such that the defense was waived for a lack of notice. The Plaintiffs will not repeat that discussion here, but would ask the Court to take it into consideration when ruling on this issue. The Court denied Plaintiffs' motion in limine to exclude the affirmative defense of setoff from Phase II, but the Court declined without explanation, leaving open the possibility that, while the Court did not want to address the issue in limine, it had not determined as a substantive matter that the defense did not require pleading. Consistent with the denial of the motion in limine, the Government, in Phase II,

offered evidence of numerous payments for which they will presumably be requesting setoff against any just compensation that is awarded the Plaintiffs on their takings claims.

It is undisputed that the Government, in answering Plaintiffs' complaint and amended complaint did not plead, as required, an affirmative defense of setoff. And, although the Government had over six years from the time of the filing of Plaintiffs' complaint to file a motion seeking leave to file an affirmative defense of setoff out of time, it chose not to do so. It appears that the Government had some understanding that it would be allowed to pursue the affirmative defense of setoff in Phase II simply because such defenses are a part of the Court's determination of just compensation in Phase II. However, if that were the case, why are there rules that require certain pleadings to be made within certain time periods? If that were the case, Plaintiffs would not have been required to file a complaint setting out the specifics of their claims and repeatedly made to amend that complaint as various Plaintiffs or claims were dropped from the litigation. They would have simply been allowed to proceed on their claims in Phases I and II without a timely written and detailed complaint, even though the applicable rule mandated it, because the Government was put on general notice that the Court would be taking up Plaintiffs' claims in those proceedings. The illogic of the Government's contention should be obvious

The purpose of a pleading within a certain time frame is not simply to provide a general notice that certain relief will be requested. Rather, the notice is to provide details of the relief requested so that a party is not ambushed at trial. "The purpose of [RCFC 8(c)] is to give the opposing party notice of the affirmative defense and a chance to respond." *Shell Oil*, 896 F.3d at 1315-16; see *Ultra-Precision Mfg., Ltd. v. Ford Motor Co.*, 411 F.3d 1369, 1376 (Fed. Cir. 2005) (quoting *Smith v. Sushka*, 117 F.3d 965, 969 (6th Cir. 1997)). Thus, by definition, in the case of setoff, the notice must be sufficient to allow the opposing party to respond to the specific

setoffs that will be claimed at trial such that a notice that simply indicates that setoff will be a defense at trial is not sufficient to satisfy the purpose of **RCFC 8(c)**. Thus, while a notice may provide generally that a defendant intends to raise the affirmative defense of setoff at trial, without more, the notice would be insufficient and prejudicial to the plaintiff requiring the exclusion of the defense at trial. This is not mere theoretical hoop-jumping because even after the trial, Plaintiffs *still are not aware of which set-offs the Government is requesting*. Even in this filing, Plaintiffs cannot fully anticipate what they are supposed to be responding to in terms of specific set-offs.

The failure to raise an affirmative defense does not always result in waiver. *Shell Oil Co.*, **123 Fed. Cl. at 718-19**. “The determinative factor is whether there is ‘unfair surprise or prejudice.’” *Id.* at **719** (*quoting Entergy Nuclear Fitzpatrick, LLC v. United States*, **93 Fed. Cl. 739, 746 (2010)**), *aff’d*, **711 F.3d 1382 (Fed. Cir. 2013)**. Generally, there is no waiver where the lack of notice does not prejudice the opposing party. *Id.* at **718**. Given the purpose of the **RCFC 8(c)** notice, unfair surprise or prejudice would occur where the notice received was nothing but a general awareness by the opposing party that the setoffs issue could be raised at trial providing very little or if anything in the way of specifics as to the source and nature of the setoffs that might be claimed so as to allow the opposing party to adequately respond and prepare for trial as to those setoffs.

The courts have been reluctant to permit affirmative defenses to proceed once there has been significant activity in a case, as here, “such as a trial or discovery, has concluded because the plaintiffs would be unfairly prejudiced.” *Id.* at **718** (*quoting Entergy Nuclear*, **93 Fed. Cl. at 746**). Waiver has been approved under the unfair surprise and prejudice standard where the Government, as in this case, had “‘ample opportunity to broaden the scope of the litigation ... but chose not do so’ in a timely fashion.” *Shell Oil*, **896 F.3d at 1316** (*quoting Am. Airlines*, **551 F.3d at 1306**; *see*

also Cencast Ser., L.P. v. United States, 729 F.3d 1352, 1363 (Fed. Cir. 2013) (affirming denial of a motion for leave to amend only two years after deadline for amendments had passed). Moreover, waiver is more likely to be found where, as here, a party fails to offer any reasonable explanation as to why it never made any attempt to comply with **Rule 8(c)**. *Shell Oil*, 123 Fed. Cl. at 717.

Plaintiffs submit that the explanations given by the Government for its ignoring **RCFC 8(c)** for over six years are anything but reasonable. It appears more likely that the Government made no real attempt to explain why simply because it believes that the rule will not be enforced against in nearly all situations. Hence, what would be the incentive for the Government to comply with the rule when it could possibly gain a trial advantage by keeping the opposing party in the dark as much as possible. Such gamesmanship has been condemned in *Principal Life Insurance Co. v. United States*:

[T]he United States may not, when the need strikes it, transform a victory [for the plaintiff] into a pyrrhic one by raising a setoff at the last possible moment. To hold otherwise *would encourage a lack of due diligence by defendant* in timely asserting defenses and leave plaintiffs . . . guessing as to the true litigating hazards associated with their cases—in both instances, introducing a level of gamesmanship into [law]suits that has no place in a judicial forum governed by procedural rules that are supposed to apply to both parties. [The United States] here certainly had the opportunity to plead its setoff earlier and nothing in the evidence suggests that it was unable to do so.

76 Fed. Cl. 326, 327-28 (2007) (emphasis added). Moreover, the Government understands that even though it is the rule violator that is thumbing its nose at **RCFC 8(c)**, if it is called to task on its failure to comply, the burden would be on the Plaintiffs to establish prejudice such that the burden of non-persuasion would not fall on it, which is even more incentive not to comply. This puts Plaintiffs in the impossible position of establishing how it is prejudiced *when it still does not know which set-offs are being claimed*. There is no incentive for the Government to comply where there is an upside and very little, if any, downside in not complying. Plaintiffs wonder what the

Government would think if this shoe were on the other foot and the Plaintiffs did not comply with pleading requirements unless forced to do so by the Court.

Regardless of the Government's state of mind, as a matter of fundamental fairness, Plaintiffs are asking the Court to exclude the Government's affirmative defense of setoffs from Phase II because it was not pled as required by **RCFC 8(c)** and because sufficient notice of the specifics of that defense was never provided by the Government to the Plaintiffs pre-trial such that they were thereby prejudiced.

B. Alternatively, Setoffs Should Not Be Allowed Because the Government Failed to Satisfy Its Burden to Prove What Setoff Payments Were Made by It and the Amounts

Even if the Government's affirmative defense of setoff is properly before the Court in Phase II, the Government still has the burden to prove that the setoff payments in question were (1) made by the Government in the amounts claimed; and (2) were made as a setoff to an award of just compensation to the Plaintiffs *for* injuries and losses that resulted from the *but-for* MRRP flooding. *See Long Island Sav. Bank, 503 F.3d at 1252* (burden on defendant to establish an affirmative defense properly before the court).

In Plaintiffs' Proposed Findings and Conclusions, they set out the Government's failure to satisfy their burden of proof for any setoffs. **PFoF 407-412**. However, Plaintiffs want to highlight herein the impropriety of any requested setoffs for federal crop-loss insurance payments. The Government appears likely to claim that federal crop loss insurance payments were made to the Plaintiffs that qualify as setoffs. However, Plaintiffs submit that as to these purported payments, the Government failed to establish, as required, that they were made to the Plaintiffs for crop losses that resulted from the MRRP flooding found by the Court.

Generally, under the *collateral source rule*, the defendant is not entitled to a setoff for benefits received by the plaintiff reducing the damages owed the plaintiff by the defendant. *See*

LaSalle Talman Bank, 317 F.3d at 1372. The rationale for this general rule is that the defendant should not receive a windfall for benefits received by the plaintiff from a source other than the defendant. *Id.* Thus, insurance benefits paid for by the plaintiff are subject to the collateral source rule and the defendant may not reduce the damages he owes by the insurance benefits paid for by the plaintiff. *Id.* However, where the defendant has not only caused the damage but is responsible for the benefits bestowed on the plaintiff for what amounts to compensation for such damage, then the defendant should be credited for that as a setoff (assuming no infirmities in the pleadings). *Id.*

Here, the Government is contending that although the Plaintiffs paid for the crop insurance, it should still receive setoffs for crop-loss insurance payments made to the Plaintiffs because those payments were partially subsidized by the Government – payments on premiums and indemnity payments. Even if the Court were to find that such subsidies are not subject to the collateral source rule, to receive credit for them against the just compensation owed the Plaintiffs for the MRRP flooding in question, the Government would have the burden to establish (1) that they were made in payment concerning the crop losses sustained by the Plaintiffs as a result of the MRRP flooding found by the Court and (2) the specific amounts of those purported subsidies that were paid by the Government to each plaintiff. The Government did not do either.

The Government offered no reliable evidence to connect the crop subsidy payments in question to the Plaintiffs' MRRP crop losses. **PFoF 407-408.** The crop insurance records provided by the Government, it reflects that indemnity payments were made, but that they were paid by the insurance company not by the Government. **PFoF 411.** The Government is not entitled to setoffs for those payments, both because they are subject to the collateral source rule and alternatively because the Government did not carry its burden of proof. Likewise, the Government's expert witness on such payments, Mr. Zanoni, did not provide any testimony as to what premiums or

indemnities were actually paid by the *Government* to the Plaintiffs. **PFoF 412.** Moreover, he offered nothing to confirm what payments were made to the Plaintiffs for their injuries and losses resulting from the MRRP flooding. **PFoF 407, 409, 412.** The evidence would only establish that some unspecified portions of the payments made to the Plaintiffs may have been subsidized by the Government. Without evidence in the record from which the Court can determine the amounts of those government subsidies that were paid by the Government to the Plaintiffs' for crop losses resulting from the *but-for* MRRP flooding, no setoffs should be allowed for the same.

CONCLUSION

Plaintiffs submit that based upon the Court's Phase I Findings, Conclusions, and Opinion, and all the evidence admitted in Phases I and II, and the foregoing Proposed Findings and Conclusions and Post-Trial Brief, they are entitled to and should be awarded just compensation for all injuries that resulted from all of the MRRP flooding of the Phase II Tracts in 2007, 2008, and 2010, and the Ideker and Buffalo Hollow Phase II Tracts in 2013 and 2014. Just compensation includes compensation for crop losses, land reclamation, flood prevention, damage to structures, damage to equipment and other personal property. Just compensation would also include *additional* compensation for the diminution in the fair market values of the Plaintiffs' real property interests in fee simple in the Phase II Tracts for the taking of flowage easements that are permanent. In addition, Plaintiffs are entitled as just compensation compound interest from the time just compensation should have been paid by the Government to the Plaintiffs for the takings until it is actually paid. Plaintiffs are also requesting, to be determined later, their reasonable attorneys' fees and expenses as provided by law.

Dated: August 28, 2020

Respectfully submitted,

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